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THE FORUM OF EDUCATION.

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A Study of the Appreciation of Beauty in School Children.

By EDITH NEWCOMB.

(1) Nature of the Investigation.

Over 2,000 children between the ages of 7 and 13 years inclusive were asked to write in school fifteen-minute compositions on "The most beautiful thing I have ever seen." No warning of the subject was given beforehand, and no help or suggestions whatever, except that in some schools the children were told that they should write truthfully. The exercise was given to boys and girls in elementary and secondary schools in towns and villages in various parts of England, and also to both white and coloured children in the United States. The compositions were read carefully and records kept of (1) the subjects chosen by the children, (2) the elements of beauty mentioned by them. Instances of special ability in communicating the feeling of beauty by the written word were also noted. The aim was to discover if possible how far age, environment, sex, and other influences affected these things.

Various objections immediately occur to the practical teacher :—

(1) Children write what their teachers expect of them instead of their own ideas.
(2) They repeat what they have read in books.
(3) Their vivid imaginations lead them to pure invention rather than to truth.
(4) They write of what they like best instead of what they think beautiful.
(5) Young children cannot express themselves in writing and need to be questioned orally.
(6) Children cannot decide upon the most beautiful thing out of the many they have seen.

Experience, however, easily answers all these objections. (1) If the children had tended to write what their teachers expected there would have been a sameness observable in the compositions of the children taught by one teacher. In no English school was this found ; there was often a standardised handwriting, width of margin, length of paragraph, and so on, but no standardization of ideas. In an American school, several girls of 11 in one class wrote pious sermonettes about "My Mother," suggesting definite teaching in school upon the subject, and in each of the American schools a few children chose the flag, but considering the repeated emotional stress laid on patriotic teaching in that country, their fewness was astonishing—12 out of 500. A few children showed that they were influenced by the opinions of other people, especially relatives, father, mother, auntie, "my sister Olive," "people," "Everyone was looking at the sunset and admiring it"; "People were saying to one another that it was the most beautiful sunset." A very few children chose to write on "Teacher," but these were so young that their motives were surely disinterested; *e.g.*, a girl of 7 wrote: "Governess is beautiful because she wears lovely clothes today she has a yellow blouse she wears lovely beads she has a watch and governess wears eyeglass she has black hair I like governess very much she has a flower in her blouse each side and she has lovely teeth."

(2) Only rarely is the influence of books patent before the age of 12; it is fairly obvious in the 12 year olds, and almost universal later than this; *e.g.*, from a sophisticated boy of 13: "The rock down which it tumbles is clothed in moss, so that the waterfall resembles a shimmering veil over a green cloak." Of the few earlier instances, the following is taken from the guide-booky account of the Library of Congress, written by a coloured boy of 9: "The Mural paintings are among the most beautiful in the world. Because of the presence of this library, Washington is a center for research work. A sight-seeing trip in the Nation's Capitol is not complete without a view of the Library of Congress." The next is the production of an English girl of 11. "On, on, on, streched the beautiful foam-capped sea. Far across its heaving surface was half an orb shining gloriously in the heavians and reflecting in the ever glorious white-crested sea with its waves like great gallant steeds in a mighty war." The following, by another girl of 11, is almost certainly reminiscent of Wordsworth: "We saw in the distance something that was like a sheet of yellow. As we got nearer it was a field of fluttering daffodills. By side of them was a stream running along, the daffodills seemed to bough there heads to the stream."

(3) The great majority of the compositions bore the stamp of truth. The girl who wrote of the Eiffel Tower, though she had never been out of England, and the boy who described a jolly adventure with a camel in South Africa, probably merely ignored the word *seen* in the title of their compositions.* Far more frequent were compositions which carried with them the conviction of reality; *e.g.*, that by a boy of 9: "The most beautiful thing I have ever seen was a yellow Hammer. I saw it sitting on a branch of an oak tree in a wood it look so beautiful with its yellow breast as it sat on the branch. I saw it on Sunday morning when I went a walk. I stayed there till it flew away." A girl of 10 wrote: ". . . the leaves falling in autumn, they were red, brown and yellow. They were falling at the time I saw them, twirling down through the air. They were very very beautiful, and as I was directly under one it made the sky look as if it had a spot of brown on it." A girl of 9: "One day I saw a little calf with its mother and I can remember it till this day." No one who has spent a winter and spring in the Eastern States could fail to sympathise with the boy of 10 who wrote: "On a

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*Others did the same when they wrote of nothing but sounds or fragrance. Children often jump at the general meaning of a phrase and ignore the words that compose it; *e.g.*, the word *thing* did not trouble them at all; it included for them, as it was meant to do, persons and qualities, sensations and objects.

spring day I saw the new grass which I thought was the most grandess thing I ever saw because it had just started to grow. It was growing in a medow where the sun could shine upon it and when I was far from it it looked like a carpet. It had just been refreshed by a rain and I saw it playing in the water on my way home from school." An American girl of 9 wrote : " You could see range after range of mountains, the sky looked like the ocean and the clouds looked like foam."

(4) The distinction between " agreeable " and " beautiful " is a dispute which is always with us. The children's compositions confirmed the view of Marshall (" Pain, Pleasure and Æsthetics "), that " there is no kind or description of pleasure which is not, for one person or another, part of what makes up the æsthetic psychosis ; . . . on the other hand there seem to be for each individual certain pleasures which he individually does exclude from his own æsthetic field." Thus, though the greatest pleasure of some of the children must undoubtedly be in eating, yet hardly one of them chose such subjects as cake or ice-cream without explaining, for instance, that the cake was a white wedding-cake, " with little bells and a lot of white swans sitting around in places, and tinsel here and there," or that the ice-cream was " pink and white and made of Devonshire cream."

In order to answer objection (5) and (6), over 100 children aged 7 to 10 were asked individually and orally : " What is the most beautiful (or the prettiest) thing you have ever seen ? " Their replies varied as much as did the written answers of children of these ages, but no more. All the subjects mentioned by them were also found in the written compositions, and they emphasized the same elements of beauty, colour, brightness, sound, and so on.* The rapidity with which they made their decision was striking ; none required more than a few minutes, and every child had an answer to give. The written compositions, on the other hand, occasionally showed that the child was conscious of the difficulty of choice, *e.g.*, " I cant say that this is the most beautiful thing I've ever seen but it's nice." " I have seen so many beautiful things in my life that I should consider it a very hard task to decide which was the most beautiful." Two girls of 11 and a boy of 8 took so long to decide that they had written nothing when the fifteen minutes were up. Some evidently chose the most recent vivid experience of beauty ; *e.g.*, writing on a particular day in February, 1923, one girl at Wokingham and several at Harrow described that morning's sunrise ; and on a certain day in March, over 20 children in different schools in Washington told of the effect of a late frost after spring rain. A boy of 10 thus described it : " There was ice frozzen on the trees this morning. It was the most beautiful thing I had ever seen. They were like dimands and like silver. I was in delight as I looked at the ice hanging from the trees. Everything looked beautiful." Others on the contrary recalled an experience of several years before : " I was about 5 years old when I saw it " (girl aged 11). " Long ago when I was but young. . . ." " I was only 5 years old, and did not know the meaning of things " (girl of 10).

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*It is true that a few children were conscious of the difficulty of expressing themselves in writing, but those who answered orally also felt the same difficulty. One wrote : " Though I have tried my best description of it it is not nearly so beautiful as the real subject." Another : " It is very hard to describe it, for it is more beautiful than i can explain." Lady Glenconner (" Sayings of the Children ") reports that one of her boys said : " This picture really is too beautiful for speaking."

It is of no consequence that the children could not or did not decide on the *summum pulchrum* ; what is important is that the majority of them had a more or less clear idea in their minds of what they considered beautiful, and were able to express it, more or less adequately, in words.

(2) THE SUBJECTS CHOSEN BY THE CHILDREN.

The subjects chosen by the children were very diverse. More than half of them chose one or more of the beauties of nature : flowers, animals, country scenes, views of land and sea, sun, moon, stars, rainbow, and so forth. The rest chose famous buildings, pictures, statues, things seen at theatre or cinema, furniture, dress, toys, etc. One or two were conscious of making a definite choice between natural and artificial, *e.g.*, an American girl of 11 wrote of fireworks, but added : " while writing this I have thought of a still more beautiful thing, it was the Northern Lights," and a blind boy said : "I should choose music, the piano, but I suppose the music of nature is really the most beautiful, the music of the birds."

The proportion of those who chose the more *sublime* things of nature, sun, moon, stars, rainbow, grand scenery, the sea, Niagara, increased steadily with age, from less than 10% of the 7 and 8 year olds to nearly 50% of the 13 year olds. The *sunset* was described by a large number of children, especially of the older ones, and this subject seemed to touch most readily the springs of emotion and inspired many attempts to express æsthetic feeling, when the whole being is absorbed by beauty. " I gazed at it in wonderment " (age 11) ; " It made my eyes dazzle, it had so many colours. I have never seen anything so beautiful after that " (age 12) ; " Day after day, I longed to see another sunset like this, but I have not seen one since " (age 10) ; " I was absorbed by its magnifence that is beyond description and did not hear my friend's call " (age 11) ; " I looked again at this entrancing scene and gazed in awe " (age 11). Colour and change are the appealing elements in the beauty of the sunset ; many children also notice its power of beautifying all nature, and write of mountain or meadow, sea or lake, seen in its light. A girl of 8 began her composition : " Which way you go and turn or whatever I look at, nothing seem so beautiful as a sunset at sea." Glitter or brightness is another appealing element. Little children sometimes chose the sun " because it shines," or the stars " because they twinkle." The power of the sun was emphasized by a boy of 11 : " The sun is a grand thing and no one can make anything like it. For no one can ever lift a human eye to the sun or they will have to wear eyeglasses and it is so strong it might make a weak person absolutely blind."

[NOTE.—After the first draft of this paper was finished, the writer came across Earl Barnes' " Studies in Education," 1902, in which there is a report of an investigation based on 700 papers written by the girls in the Board Schools of London in response to the direction : Describe the prettiest thing you have ever seen, and say why you thought it pretty. The children's ages ranged from 7 to 13, and the aim of the investigation was to trace the development of the standard of beauty. Reference is made in the following pages to any striking similarities and differences in the results of the two investigations.]

The *rainbow* was chosen by a number of the younger children, and the reason invariably given was " because of its colours." But the simplicity of its curved form is doubtless an unconscious attraction to many. One girl wrote : " It was long and curved bow-shaped. The shape also made it look prettier."

The *sea* was the choice of less than 5% of the children, but rivers, lakes, streams, waterfalls, had an important place in many of the landscapes described. Niagara was chosen by only 8 out of 135 children living within easy distance of it.

Scenery, including both the grand and the merely pretty, was chosen by few children under 10, but after this the number increased considerably, confirming the investigation made by Schulze in German Elementary Schools.*

According to Sully, " perhaps the nearest approach to a pure æsthetic enjoyment in the early days is the love of flowers," and certainly *flowers* are very popular with school children. Over 20% chose them—a higher percentage than any other subject attained. The rose was the prime favourite, and next came the commoner wild flowers, such as buttercups and daisies, primroses and bluebells. One truly democratic American chose the nasturtium " because it was voted on by the children of our nation saying that it is the most beautiful flower of all the flowers they had ever seen. Hence that is my opinion also." Sometimes the child had a special flower in mind : " The tea rose that grew in my auntie's garden last year " ; " I liked the buttercup so much that I plucked it and took it home. I put it into a glass jar. Every day I watched it grow till it was a big flower. Then I liked it all the better." All too often flowers were associated with illness and death. " Sometimes people have roses in the house when people are very poorly in bed" (age 9) ; " When somebody is very ill you take a bunch of roses " (age 9). One little boy chose a funeral wreath as the most beautiful thing, and another wrote : " I like a funeral because you see lovely horses and nice flowers." What they chiefly like in flowers is evidently, first and foremost, colour : " a red rose," " the lily because it is white," " a field of bright yellow buttercups " ; perfume : " I was sorry when it died, for it had such a beautiful smell " ; texture : " flowers are smooth and soft " ; movement : " nodding in the breeze " ; littleness and gentleness : " I like the little flowers, they bloom so nice and tenderly." This last sentence, written by a girl of 9, shows what Sully calls " the warmth of a young personal sympathy." South Country children, as one would expect, wrote of flowers with more understanding and affection than children from Lancashire ; English children were more interested in them than the children of the States ; and in both countries a larger percentage of girls than of boys chose to write on this subject.

Very close to flowers in popularity came *animals*, including birds and insects. The younger children, in particular, frequently wrote of baby animals : " lambs playing round their mother," " a baby chicken on its mother's back," " little kittens playing with their tails," " little puppies, it seems quite a shame that they have to grow up into a big dog, but it cannot be helped " (age 10). Movement and action evidently play an

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*See C. W. Valentine, *Experimental Psychology of Beauty*, page 68.

important part. A boy of 10 wrote : " a spaniel dog, I like it because it can catch rabbits," and a boy of 9 : " a beautiful gray horse, because it ran very fast and was very clean." The softness of fur was only rarely mentioned : " I like the cat because its back is smooth " (age 8) ; " I saw the lion cubs when they were about a week old, and I have never seen such small, fury and sweet little animals as they were " (age 10). The sounds made by animals were so rarely mentioned that the following, from the composition of a boy of 10, was almost unique : " And the badger steals out at night and snorts, grunts shufles grumbles digs and goes back home." Dogs, rabbits, horses, lambs, were the favourite animals, and birds were mentioned more frequently than any one of these. The peacock was often chosen for its colour ; also, less frequently, the kingfisher and pigeon : " the pigeon is pretty under its chin," wrote one small boy. Skylark and nightingale, thrush and blackbird, were frequently praised for their song ; the robin for its joyousness as well as its ruddy breast : " he hopped along so gayly and happy, chirping and picking up crumbs as if all the world pleased him " ; swans for their grace and whiteness, and many birds for their nests. Their smallness evidently appeals : " I like the wagtail because it is very tiny and a tiny foot and a tiny nest," wrote a boy of 9. Butterflies were often mentioned as adding beauty to a summer scene ; sometimes a particular kind, *e.g.*, red admiral, was described in detail and with great accuracy. The hum of the bees was liked too, especially by blind children. One boy of 10 was catholic in his love of living creatures. After dealing with birds and rabbits, he went on : " the dragonfly humbs buisily about now and then resting by the pond's side. All the beautiful blossoms are out. All flys, bees, wasps, gnats, are working buisily. Frogs, newts, tadpoles, are swimming in the water and everything is a happy scene."

Apart from the beauties of nature, it is difficult to make any classification of the subjects of the children's composition ; they overflowed every category.

Toys were chosen by nearly 10% of the English children, and by 2% from the States. Girls outnumbered boys in this class, and the doll is evidently holding its place in their affection. Boys prefer mechanical toys and the activity connected with them : " there was a horn which when you turn a handle it goes gr-r-rh " (age 9).

Things seen at *theatre*, pantomime or cinema were described by about 6% of the English children and 2% of the Americans. Age makes no difference in this respect, but the children in this class were found to be more frequently from secondary schools, or their preparatory departments, than from elementary schools.

Pictures were described by about 4% of the children. *Persons* were chosen by rather more than 2%, and of these the majority wrote of a baby, or a younger sister or brother. " Our baby is full of all sorts of manly tricks " ; " babies are so chubby " ; " as far back as I remember the most beautiful thing I have seen is my little sister Barbara's face. With the sun shining on her little brown ringlets. Her big brown eyes are full of wonderment. Barbara looks prettiest when she looks up in your face when she has done something good " (girl of 11). In a very poor school in the Polish quarter of a large city in the States, a boy of 13 wrote : " The most beautiful thing I ever saw was the smile on my mother's face when our baby sister was born. It was so gentle and sweet. I never saw so lovely a face before in my life as on that day"; and at the same time in another class room his little sister of 11 was describing the new baby. A few of the girls agreed with Frances Hodgson Burnett, who tells in "The One I Knew the Best of All" that at the age of ten beauty meant to her someone "with pink cheeks and sparkling blue or black eyes, and sweetly curled hair and a charming frock."

Less than 3%—mainly girls—mentioned *fairies*, and rarely with any naiveté; *e.g.*, a girl of 12 wrote: "the snow begins to fall again for the fairies are shaking their pillows"; one of 11 said plainly: "of course there are no such things as fairies."

Abstract subjects were chosen by very few normal children. One little boy whose mother had been deserted by her husband wrote on "Love." The appeal of moral beauty is seen in the writing of a girl of 10: "The most beautiful thing I ever saw is father christmas why he is beautiful to me is because he is very kind and he helpes the poor and ill people has well has the health people." In the case of blind children, however, subjects such as Music, Peace, Kindness, Home, Sight, were chosen by 51%.

There were very few compositions of which one could confidently say: the writer of this does not know what "beautiful" means. Even the morbid choice of "our dead baby" and the boyish delight in laughter ("a cat carrying a little kitten on her back, I laughed so hard that the kitten fell off the cat's back and that is the most beautiful thing I ever saw") have their places. More difficult to reconcile with adult standards of æsthetics is the connection between beauty and *unusualness*, *e.g.*, "a workbox, because on it were two white birds standing back to back and there legs came down bellow the bottom of the box, so that instead of having to put the box down flat like an ordinary box, you could stand it up"; and the following from a coloured girl of 8: "The doll was drinking coco-cola. She had a glass in one hand and a bottle in the other. When she poured it out she drank it and it came back in the bottle through her arm." The choice of a girl of 10 was "a bunch of flowers shaped into a peacock."

The answers of one or two children from the poorest part of Manchester suggested lives almost devoid of beauty. The whole composition of one little girl was "I have heard that there are wonderful pictures at Leweses"; and another aged 9 wrote: "I have heard of a big doll that would sleep."

The number of children choosing apparently trivial and insignificant objects decreased rapidly with age, from 22% of the 8 year olds to 10% of the 12 and 13 year olds. Many of the objects, *e.g.*, possibly "my father's Masonic apron," "a magnificent leather purse," had a beauty of their own to the children through some association which they were unable to explain.

Earl Barnes found in the London schools of 1902 the same gradual decrease in the number of children choosing single objects, but his findings differ from the present writer's in that more than half of his children chose artificial beauties rather than the beauties of nature; perhaps this is mainly due to the far greater emphasis which the London children laid, naturally enough, on spectacles and shows.

(3) The Elements of Beauty mentioned by the Children.

It can be taken for granted that the children did not mention all the elements of beauty of which they were conscious, and that they were not conscious of all the elements which appealed to them. Hence the percentages given in this section have little or no absolute value as quantitative measures; their value is relative, *i.e.*, as a rough means of comparing the strength of appeal made by the main elements of beauty to school children.

The roots of æsthetic emotion are undoubtedly in the original nature of man. The mere presence of certain sensory stimuli causes in the organism responses of satisfaction. These roots are probably the satisfyingness of colour, glitter, movement, *i.e.*, *visual* stimuli. So strong is the visual appeal that J. A. Symonds says the best definition of beautiful is " pleasant to the eye," and certainly the children's papers bear out the truth of this to a large extent.

Colour was mentioned by between 50% and 60% of all the children, boys and girls alike, in both England and the States. In very many cases it was the only element mentioned.* Many-colouredness appealed most, *e.g.*, a gorgeous sunset, the rainbow, a peacock, Sutton's seed garden seen from the train; white was the favourite colour in animals, being specially mentioned in the case of dogs, horses, donkeys, rabbits, calves, limbs, swans, and even one peacock. Red, pink, yellow, blue, green were the colours mentioned by the younger children; a few of the older ones included purple and orange in their pictures. The 6 year old's " angel with heliotrope wings and a beak " was unique. The country scenes visualised by the children were generally coloured; the oral reply of a girl of 8 may be taken as typical: " Little children playing in the long grass, because their white dresses look so pretty in the long green grass." There was no evidence to show whether or not the colour preferences of the children could be classified according to the four main " aspects of colour " differentiated by Bullough (*British Journal of Psychology*. Vol. 2); the Objective Aspect, the Physiological Aspect, the Associative Aspect, the Character Aspect. There were certainly a few instances of the second of these; *e.g.*, the red breast of the robin was liked for its cheerfulness; but the general impression left from the reading of the papers was the predominance of the Associative Aspect.

Movement was mentioned by about 30% of all the English children, and by about 15% of the Americans. There was no difference between boys and girls in either country in this respect. The children's writings afford examples of the three kinds of beauty in movement usually recognised, viz., the Sublime, *e.g.*, the rush of water at Niagara; the Beautiful Proper, *e.g.*, the graceful movement of the swan, or " the little snowflakes fluttering softly down from the sky "; the Vivid, *e.g.*, the flitting of the butterfly. Balanced movement was perhaps in the mind of the boy of 9 who said that the prettiest thing was " a lark, because the higher it goes up " (he hesitated and paused; then with great satisfaction) " the lower its song comes down."

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*Cf. Miss Calkins' ' Experiment in Psychological Æsthetics, ' *Psych. Review*, 1900.

Glitter was mentioned by nearly 20%. Most authorities consider it the first element to attract the young child's attention. Sully says in "Children's Ways": "It is commonly some bit of bright light, especially when it is in movement, which first charms the eye of the novice; the dancing fire-flame, for example, the play of the sunlight on a bit of glass or a gilded frame, the great globe of the lamp just created. . . . Light, the symbol of life's joy, seems to be the first language in which the spirit of beauty speaks to a child."* This element of glitter came into descriptions of the sun, moon, stars; sea, waterfall and brook; snow and ice; the illuminated tram car at Manchester and the jewelled arch at the Washington conference (both very popular), "the dimans in the king's crown." A boy of 10 wrote: "a waterfall at Edinbrough. The reason I like it is because when the sun is shining it gleams like jewels." The percentage of coloured children who mentioned it was more than twice as large as that of white children, either American or English. The following were written by coloured children: "In the morning when the sun came out and shone on the ice and snow it made it glitter so it hurt your eyes to look at it and it made me feel so happy I didn't know what to do with myself." "The sun shone on the waves and they sparkled like diamonds." "The horse was black and every time the sun shone on him he would shine."

These three elements—colour, movement, glitter—were selected for special mention in the 1902 report, but the percentages of children mentioning them were far smaller than in the present investigation; in the case of colour the percentage was only 13%, of movement 5%, and of glitter 3%, against the 50%, 30%, and 20% found in 1922-3. Can this very striking difference be mainly due to the improvement of methods of teaching during the last twenty years?

Form was rarely explicitly mentioned, but its appeal was implied in many of the papers. The curve of the rainbow, the grace of the weeping willow and of the swan's neck, the elephant's trunk,† are examples. One girl wrote of the beautiful shapes of snow-flakes, seen under a magnifying glass.

The appeal of *smoothness* to the eye was mentioned by a few children, *e.g.*, several spoke of their delight in smooth, green turf, in despite of R. P. Knight's assertion, in his "Analytical Inquiry into the Principles of Taste," that no one could possibly see beauty in it. On the other hand, they certainly would not agree with the exaggerated emphasis of Burke, who goes so far as to say: "I do not now recollect anything beautiful that is not smooth."

Smallness and *delicacy*, two more of Burke's "causes of beauty," were occasionally mentioned by the children; *e.g.*, "a little bird with little wings," and "the little flowers bloom so nice and tenderly." On the other hand, with some children *size* seems to be an element of beauty.

**Cf.* E. Puffer, *Psychology of Beauty*, page 94; and the charming and life-like description in Dorothy Canfield's "A Life of Two Months."

†A bright child of 6 persisted in preferring "the elephant because of his trunk" above all other beautiful things. She gave the same answer on four different occasions when asked in casual conversation, the last time after an interval of three months.

A little girl of 5 said: "The church, because it's so big." Teacher: "Our school is big." "Yes, but if you knocked the top of the church off, you could see the sky all round."

Order and even cleanliness were frequently mentioned, especially by girls: *e.g.*, a girl of 9 wrote of a house "which has flowers and fruit, a very clean house, no weeds in the garden"; a Manchester girl described "banks covered with delicate ferns only just uncurled with not a bit of grime on them"; a child of 6 said: "The sun is the most beautiful thing, because it makes the roads look clean"; and a coloured girl of 8 told of the beds of George Washington and his wife at Mount Vernon: "they were kept very clean, clean spreads and clean pillows. There were also china dishes kept in a case."

Contrast, emphasized by both Herbert Spencer and Marshall as an essential element of beauty, is illustrated by the following: "All of a sudden a beautiful light sprang from the lighthouse, setting the black darkness into a glorious light. It was heaven itself to the dark cold night" (girl of 12).

The other senses play a minor, but not negligible, part. The beauty of *sound* was mentioned in the papers of about 10% of the normal English children and 40% of the blind children; 12% of the coloured American children mentioned it. It is apparently more important to girls than to boys. The songs of birds, buzzing of bees, "the ripple of happy water in brooks," were the favourite natural sounds. The cheering effects of music and singing were noted by several blind children: "Singing cheers and uplifts the heart"; "music makes us joyful. It is like a friend when we feel sad or lonely." The absence of sound also appeals: "A very calm sea, so quiet that it makes you feel as if you wanted to sleep"; "there was as absolute deadly stillness, not a thing stirred, not a noise was made, there was not a ripple on the sea" (age 12).

Smell played a less important part; some 3% of all the normal English children referred to it; about twice that proportion of coloured American children, and 30% of the blind children. Three blind girls wrote: "It is very convenient for the rose to have such a strong scent because bees pay more attention to a flower when it has a sweet scent as the rose has"; "if people cannot smell the flowers, Nature gives another thing, for they have beautiful colours"; "the crowning beauty of the rose is its fragrance." "The bluebells drooped their heads down fragrantly" was the rhythmic sentence of a girl of 10.

Touch was very rarely explicitly mentioned as a source of pleasure. "I like the cat because its back is smooth"; "flowers are smooth and soft"; "when you are bare footed go down low in the sand"; "the rose is so soft and velvety to touch." About 9% of the blind children, less than 2% of normal English children and of coloured Americans, and not one white American referred to this sense.

Taste was only once explicitly mentioned ("a little chocolate house, she gave half of it to me, it was delishous"), but those few children who chose eatables as the most beautiful thing undoubtedly meant that they were good to taste as well as to look upon. The children who chose such subjects were invariably from English elementary schools, and their abnormal choice was probably due to deprivation of opportunity for satisfying a natural desire.

Masefield's Dick, the primitive male in "The Tragedy of Nan," puts most of these elements of beauty into one short speech : "They 'ave their red cheeks, so soft. And sweet lips so red's red. And their eyes bright, like stars a'zhining. And oh, such white soft 'ands. . . . I like watching the little boys zwimming in the river. They be so white and swift, washing themselves. And the splashing do shine zo. Diamonds."

(4) THE INFLUENCE OF AGE, SEX, ENVIRONMENT, ETC.

With increasing *age*, the number of sublime subjects steadily increases while the number of very trivial subjects decreases. Between these two extremes, however, is a fairly constant percentage of subjects such as flowers, animals, country scenes, and pictures. With regard to the elements of beauty mentioned, the number increases rapidly with age ; probably not because their appeal becomes more general, but because it becomes more conscious, and the power to express it in words increases. The figures in the following table represent percentages of English children of the given age mentioning the given subject :—

TABLE 1. INFLUENCE OF AGE.

Age	5*	6*	7	8	9	10	11	12	13 *years.*
	%	%	%	%	%	%	%	%	%
Sublime subjects	4	5	9	8	13	21	27	39	49
Trivial subjects	30	30	14	22	25	20	16	11	10
Scenery	0	1	1	5	6	14	12	15	20
Flowers	19	27	28	19	31	22	17	13	17
Mention of Colour	13	18	40	39	46	68	58	58	71
Movement	1	2	14	18	19	30	33	43	39
Glitter	6	10	6	7	12	10	20	36	30
Sound	0	3	4	4	5	6	10	11	18

In comparing other groups, the question of age was eliminated as far as possible ; *e.g.*, for comparing English children with (1) white Americans, (2) coloured Americans, only those between the ages of 9 and 11 were considered.

The English group consisted of 300 unselected children from many different schools ; the white American group consisted of 150 children from three different States ; and the coloured group was formed by 200 children from three schools in Washington D.C. As for the subjects chosen, the difference between these groups was very slight. The white Americans had a larger number of animals, sunsets, pictures ; the English chose more toys and theatre scenes. But the likenesses were more striking than the differences. With regard to the elements of beauty mentioned, English children showed more interest in movement, and coloured children in glitter, sound, and smell ; in colour there was no significant difference.

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*The percentages for years 5 and 6 were obtained by questioning 100 of each age orally.

TABLE 2. INFLUENCE OF RACE.

	English.	*White American.*	*Coloured.*
	%	%	%
Mention of Flowers	23	18	23
Natural Scenery	11	12	15
Sea	4	3	3
Artificial Things	37	33	28
Colour	53	47	53
Movement	32	13	17
Glitter	14	16	38
Sound	7	7	12
Smell	3	1	6.5

As for the *influence of sex*, boys, both in England and in America, chose natural scenery and animals more often than girls, and flowers, pictures, the sea, less often. But the figures are not strikingly different except in the case of animals. English girls are more interested in colour than the boys,* and in both countries the girls mentioned sound more frequently.

TABLE 3. INFLUENCE OF SEX.

	Boys.			*Girls.*	
	English.	*U.S.A.*		*English.*	*U.S.A.*
	%	%		%	%
Animals	34	30	....	19	25
Scenery	22	22	....	14	13
Flowers	20	13	....	28	22
Sea	1	2	....	5	7
Colour	45	48	....	65	47
Sound	4	3	....	8	10

The interest of the boys is obviously in *doing* ; when they wrote on a bird, they told just how the nest is made ; when they chose a toy, they gave detailed instructions for making it. Sometimes they described adventures in which they took an active part, *e.g.*, a fox hunt. A boy of 9 wrote : " The most beautiful thing is the seaside when the waves rise and show their white foam. I liked it because their was an enormous lot of children their to play with." Another aged 8 wrote : " I think the seaside is a lovely place. Because we can go paddling in the sea. We can play on the sands at making sand castles. We can go fishing with fishing-nets. Then if there is a lake we can sail our ships." In these descriptions they cross the boundary of æsthetic pleasure, which is always more or less passive. The boyish delight in joy and merriment has been already illustrated ; other examples are : " I'm sure that a baby is the most beautiful thing of all. He tries to talk and then he trys to walk and he makes you laugh so much " (age 10) ; " a little pup. When it started to run it fell over and it made me laugh." In style the boys tended to be more vigorous and original ; less docile in matters of punctuation and sentence-construction, they occasionally produced what might easily pass as *vers libre* in a modern anthology. One boy of 9 wrote as follows (the arrangement in lines is not his) :—

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*Confirming previous investigations into sex differences ; see Thorndike, Educational Psychology, vol. 3, chapter 9.

> On a summer's morning from the bottom of a hill,
> the beautiful light green and yellow oaks,
> and a swan swimming on the water,
> the silver birches,
> and the kingfishers building there nests in the bank,
> the trout darting in and out among the water lillies,
> the old heron standing on the bank,
> and the blue sky over head.

A little boy of 7 wrote the next one :—

> I have seen a narcissus in a garden by a cottage in a field
> and birds in the trees.
> There were farms and barns ;
> near by lay a nest with eggs in hatching,
> and a lark in the sky looking for her little ones.

As some measure of the influence of *environment*, the compositions of 300 Manchester children aged 9, 10, and 11 were compared with those of 250 children of the same ages from South country schools (excluding London). The results showed no significant difference in the elements of beauty mentioned ; but in the choice of subjects the Manchester children were more likely to choose artificial beauties and even trivial objects such as toys and ornaments, while the South country children preferred natural beauty, flowers, animals, sunsets.

TABLE 4.

	Manchester. %	*South Country.* %
Colour	55	56
Movement	29	26
Sound	9	9
Artificial Subjects	41	26
Sunsets	3	10

When elementary school children were compared with those in secondary schools, there was again found no difference in the elements of beauty mentioned, but in the choice of subject the secondary pupil was more likely to prefer the sublime to the trivial, natural to artificial. However, in these days there is no hard and fast social barrier between elementary and secondary school children, so in order to get a clearer distinction, two schools for the children of the rich, one a first class preparatory school for boys and the other an expensive private school for girls, were isolated from the rest. These favoured children produced compositions which were delightful to read ; they wrote out of a wide and rich experience, and many of them revealed a hearty appreciation of the joy and beauty of life. But when it came to classifying the subjects they chose and counting the elements of beauty they mentioned, the difference between them and the unselected children was not as great as might have been expected. Taking the group as a whole, they were about one year in advance of their age (average 11 years) in the frequency with which they chose sublime subjects and mentioned definite elements of beauty. In style, punctuation, and spelling they were normal. Their superiority lay in their wider experience of life. While a slum child might be writing of a rare visit to a park where " a policeman kept the gate and we had to show some little blue cards before he would let us in," or where " there was a bin up and down for the paper and orange peel to keep it very tidy," the rich child might be telling of a motor tour in Switzerland. But the same kind of thing appealed in both cases ; the flowers and birds and animals that they saw, the ripple on the water, the sunset on the way home ; and these things appealed because of their colour, glitter, movement, sound.

In all the groups compared, the likenesses were more striking than the differences. In every large group of 9- 10- 11-year-olds, whether English or American, white or coloured, boys or girls, elementary or secondary, North or South country, over 50% chose natural beauty ; between 20% and 30% chose sublime subjects ; flowers and animals were chosen more often than any other subject ; between 45% and 65% mentioned colour ; between 20% and 37% mentioned movement ; under 7% mentioned smell and touch. Within each group were vast differences, but each group overlapped the others. The sense of beauty is a common bond, and fundamental in child nature.*

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*A suggested scale for estimating the development of the appreciation of beauty will appear in the next number of *The Forum.*

The Bad Lad.*

By ALEXANDER PATERSON.

By the phrase " A Bad Lad," I do not mean the ordinary sort of boy that we all meet in a crowd, nor the high-spirited, troublesome lad who thinks that the four walls of his class-room are stifling and even the four walls of his playground are cramping, and is generally regarded as a nuisance by everybody. As a rule when such a lad leaves school, as you and I know, he becomes a decent average British citizen, and most of us wish that his high spirits only remained with him a good deal longer than they do. I do not mean the troublesome, mischievous, high-spirited boy, but rather the curious and the exceptional lad, who, after leaving school, through one cause or another gets into trouble with the police and is brought up in a Court of law.

As some of you know, I have the honour to be one of His Majesty's Commissioners of Prisons. In the course of each year I see some thousands of men in prison. One of my most constant reflections is this : that for every one of these men and lads there was a time when he sat at an ordinary school desk in front of his teacher. I want you to think particularly of that boy. The " bad lad " in later years becomes a criminal. I do not want you to think of him as an abnormal person. I would call him exceptional rather than abnormal. Our forefathers in speaking of him used to say he had an evil spirit. They found something curious, something distinctive about him, something almost mysterious. There is a lack of balance in the bad lad, a crooked vein which seems to run right through his thoughts and emotions. There is always a degree of uncertainty about him. He is, in fact, a very difficult problem.

How many are there of them ? That is an interesting point from which I think we well might start. These are the only figures I need trouble you with. Every year 7,000 boys are brought up, charged at the police courts, and put on probation. They are not sent to any of the Government or private institutions. They are handed over to the care of a Probation Officer. Fifteen hundred lads are sent to industrial and reformatory schools, another 500 are sent to the Borstal Institution. There are, I am sorry to say, another thousand who enter prison, who have never been previously in any sort of " trouble " at all. I will not worry you with mathematics, but I will put my rough guess at this, that for every 100 boys who leave your elementary schools one is a " bad lad," and comes sooner or later into contact with the law. It is just about that one that I have come to ask you to think this afternoon. Let us for a moment leave the ninety-nine and turn all our thoughts to the one.

I have no pretensions to be a psychologist. I will not attempt to try and define in a psychological manner what is wrong with the mentality of that one bad lad. I only have the working psychology that one gains by being for a short time a teacher in an elementary school, and by working for many years in Boys' Clubs, and by serving in the ranks of the Army. But I will tell you how it seems to me.

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*An address delivered before the Training College Association at University College, London, January 11, 1923.

There are three elements necessary in the commission of every crime. In the first place there must be the element of desire. A desire varying in strength, varying in distinctness, a desire to do something that is wrong. We all have those desires to do something that is wrong.

The second necessary ingredient for the commission of any crime is the opportunity to gratify that desire to do something wrong. You might think that the desire and the opportunity to gratify it coming together would be sufficient to account for a criminal act, but you and I know perfectly well that everyone of us has at times a desire to do something that is wrong, and at the same time an opportunity is afforded us to gratify that desire. We do not commit the crime. Why not? Because something holds us back, something theologians call conscience, but psychologists sometimes call an inhibition. When a crime is committed, there is the strong desire to do something that is wrong, *e.g.*, to take something that is not yours, coupled with the opportunity to gratify the desire, and coupled with a third thing, the absence, the almost complete absence or extraordinary weakness of any inhibition to the contrary. We all have the desire at times, we all have the opportunity; the difference between the ninety-nine of us who do not commit the crime and the hundredth who does, is the absence or presence of an inhibition. The ninety-nine have an "inhibition," encouraged either by their home training or school training, an inhibition which the hundredth boy lacks. Our social inhibitions, our social life, the conventions of the circle in which we move, protect us from being criminals. It is easier for us to be honest than to be criminals. If we wished to take a motor-car outside this afternoon, and if the motor-car was there and it was perfectly easy for us to drive off and never be detected, we still should not do it; quite apart from any sense of right or wrong, we should find it quite impossible to explain to our friends, who knew our limited income, how we suddenly came into possession of a motor-car. The very fact of your circle of friends and relatives protects you from committing quite a large number of crimes.

Now why does the hundredth boy go off the rails, while the ninety-nine manage to keep on the straight path? In the first place his desires are probably stronger. If you want to prevent that hundredth lad becoming a criminal, you must do something to balance his desires and to provide him with more varied interests in life. You may do it by giving him more physical exercise, by more sport, by arousing more varied interest, by encouraging more hobbies, by making his life a little less empty than it is. In this way he shall not be confronted always by one overmastering desire, a desire that becomes so strong that, if the opportunity is presented, it is almost irresistible, and no inhibition will hold it back. Take a man who is absolutely down, has not had a meal for hours and hours, has flung out of his home and is standing up against a street corner, who is consumed with the desire for food and the still stronger desire to get food for his wife and children—under such circumstances the desire overmasters almost any conceivable inhibition. So the first thing you can do is to study a lad's desires, to help him balance them, to fill up his life, so that at no one moment is the whole of his conscious self swayed by just one overmastering desire to do one thing that he knows to be wrong. But we cannot prevent, we cannot deprive anybody of the opportunity to do wrong. We can curtail the opportunities for doing wrong, but we can never construct a world in which there is no chance of anybody doing wrong.

The third element in crime is the most important. The one lad goes off the rails because there is no inhibition to hold him back: the ninety-nine stay on the rails because though they have desires and opportunities to do wrong something rules the whole thing out of bounds. It says "No, you cannot do that; that is right off the map; persons like us do not do these things." It is the growth of inhibition in the growing boy that will keep the greatest number of them straight.

A lad who goes to Eton or Winchester learns there a thousand and one little social inhibitions of all sorts, forbidding perfectly honest, simple things which ordinary people would do, but at his school it is the fashion that you do not do them. You do not walk about with a pair of boots tied up in a newspaper. Heaven knows why you do not, but you do not. That is just one little social inhibition. A boy who goes to a good secondary day school has five hundred inhibitions soaking into him day after day. In an elementary school there are rather fewer; there are a certain number of things that a small boy in an elementary school gradually learns that he does not do, but there are not nearly so many. So, in dealing with this one lad in the hundred, there are two things we are going to try and do. In the first place to vary his desires, and in the second place to encourage the growth of inhibition.

How is this being done at present? In the old days you know how the bad boy was treated when he came into the clutches of the law. There is a remarkable book written by Sir Thomas Fowler Buxton just over a hundred years ago, describing how he made a tour of all the County jails in the year 1815 and finished up by coming to sit at the Sheriff's Court in the City of London. He sat by the side of the Sheriff as the latter was trying two little lads of thirteen, who had been charged with stealing apples off an old lady's stall in a City street. The Sheriff sentenced the two little urchins to be taken off and to be hanged. Then he turned round and said peevishly, "Upon my word, I never saw two boys cry so much." That was the spirit in which the bad lad was treated a hundred years ago.

Fifty years ago a bad lad brought up at the Court and found guilty was thrown into a cell in an ordinary prison, with perhaps a man of fifty on one side and a man of thirty in a cell on the other side. Just thrown there, and left there day and night, locked up. You and I in this century do not agree with either method, neither the method of death nor the method of detention. Therefore you find throughout our system of law now a number of new methods, many of them still in the stage of experiment, all being tried in order that we may find out the right way of dealing with the bad lad.

I only want to speak briefly on each of these new methods. In the first place, I hope you have noticed the remarkable fact that more of the bad lads are being dealt with now out of institutions than inside. Whereas two thousand of the bad lads are sent every year to reformatories or institutions, seven thousand are dealt with by the Probation Officer while the lad still remains at home. It is far more economical for the country to deal with lads without taking them away from their homes. It probably costs £5 or £10 a year if the lad is put on probation, but anything from £50 to £100 if he is put into an institution. Further, we know perfectly well that if you can keep a boy still at home, still in the natural freedom of home life, it is far, far better than the very best institution that you can get. Probation is still new, but it is growing every year, and the demand for Probation Officers is going to increase very much in the next ten or twenty years.

As to the lads who go to reformatory and industrial schools, I wish you had Dr. Morris, the Chief Inspector, to come and tell you something of the strides that have been made in the development of these schools during the last twenty years. When my friend, Charles Russell, went to the Home Office as Chief Inspector fifteen years ago, the majority of the schools had their boys in what is described as "penal uniform." Three years ago there were only four schools left which had any sort of uniform at all. The education at reformatory and industrial schools at the beginning of the century was far below the level of education outside. As many of you know, in the last year a lad in a reformatory school passed the London Matriculation Examination. That would have been quite impossible twenty or twenty-five years ago. I give you only those two brief instances to show you something of the development of these schools in the last twenty or twenty-five years.

May I say one word about Borstal Institutions, for which I happen to be specially responsible. A lad can only go to a reformatory school if he is still under sixteen at the time of conviction. Between sixteen and twenty-one he can be sent for two or three years to a Borstal Institution. There are about a thousand lads in the three Borstal Institutions. They are there being trained for freedom, trained for the ordinary industrial life of the young working man. One of the first necessities is to see that they do a full working day when they are in, so that when they come out they will have learnt the habit of work, which is perhaps the biggest gift you can give to anyone. They do a good hard eight hours day in their workshops.

In the evening they have their evening classes. We have had long and earnest conferences to try and arrive at a syllabus. We have to deal with boys who, in the ordinary course of things, would never continue their education, would never have gone to evening school after a long day's work. We have to deal with many lads whose mental age is eight or nine, who have only just escaped the provisions of the Mental Deficiency Act. We have therefore to interpret continued education in the widest possible sense. For such boys as I have described, I am a believer in classes which use chess and jig-saw puzzles, and anything that will sharpen the intelligence, rouse the interest, and obtain a certain amount of mental concentration, so that the mind of the lad will be on one thing for perhaps twenty or thirty minutes without a break. I was down on Monday at one of the institutions where they were for the first time acting "The Merchant of Venice." They read the play and then proceeded to act it.

Perhaps the greatest change in Borstal Institutions recently has been the change into houses. There is a need to arouse a certain amount of social inhibition, the feeling that "Although I want to do that and can do it, still I won't do it because—well, we do not do that sort of thing." That can be only aroused in a lad if you get him in a small unit, which is in constant rivalry with other small units. So long as it was simply one mass of three hundred boys it was impossible to get any lad in that mass to be proud of being a member of that place. Nobody can be proud of being one of three hundred lads in an institution. But as soon as you divide that mass up into four or six houses, you get little bodies of fifty or sixty lads, each of whom very soon becomes convinced of the fact that his house is better than anybody else's house, and there grow up into use all sorts of curious little social inhibitions, as to how you wear your stockings, and how you part your hair. From those little things there do grow bigger things. Seven out of ten boys who pass through the Borstal Institutions never get into serious trouble again.

The last, and perhaps the darkest chapter of all, is that we still have boys under twenty-one coming to prison. Those of us who are responsible for the administration of H.M. Prisons would like to shut the gates in the face of every lad under twenty-one, and throw away the key. I will tell you one illuminating remark made to me by a very old officer in our service, an old gate-keeper. He said, "I have watched a lot of these lads coming in here and I will tell you one thing I have always noticed, that they come in crying, and when they go out they go out laughing." That is the saddest thing that could possibly happen—that boys should go to prison in floods of tears and emerge a week later laughing. Prisons are not the places for boys, and the sooner it becomes impossible for lads to be sent to prison, the better for the bad lads themselves. We do what we can at the Boys' Prisons, a place set apart for boys in London; we see all the boys sent there on remand; we do all we can to find out what is really wrong, why it is that they have got into this trouble. They are kept in a separate building, away from all adult offenders. Any information we can gain from the lad in his home, which is visited by one of the honorary women visitors, is always at the disposal of the court. I do believe that in time, if only we have special places to which boys may be remanded, not prisons, it may be possible to classify more exactly, to determine more scientifically, what really is wrong with the lads and what sort of treatment or training should be prescribed for them.

I have come here to ask you to help, to suggest to you three very clear ways in which the teaching profession of this country can help the bad lad.

In the first place, while he is still at school, he is very often the least attractive fellow in the class. There is something a little sly and shifty about him, a little furtive. He is a fellow that instinctively you do not like. You do not feel you can trust him. Yet I ask you to put it before the teaching profession, that he is the one lad the teacher should concentrate upon and give more time to than all the other ninety-nine in the class.

I will tell you a curious thing I have observed about these lads. I see many scores of them in the year, in prison for the first time. In the ordinary course of conversation in prison or at Borstal I ask " What was your teacher's name ? " It is an extraordinary thing that most of the bad lads cannot remember their teacher's name. It is an illuminating thing because, going back to the days of the war, I remember when we were sitting in dug-outs, sometimes through nights which never seemed as if they would end, the conversation would go on and on, and fellows—these were fellows out of the ninety-nine, ordinary fellows who had been away six or seven years from school—were always talking about their school, remembered the name of nearly every teacher, and certainly remembered the name of the one teacher whose personality and character had made an impression. It is not normal for a lad to forget his teacher's name.

Take the ordinary lads running about the streets, who come to the clubs and camps, they have not forgotten their teachers. They will talk about " Old 'Arris—remember old 'Arris ? " and tell of the tricks they played on him. We used to have hours of it during the war. But when I go round the prisons and ask about the teacher's name, it is all gone. That is why I say, while they are still at school, let that one out of the hundred occupy your minds ; let the teacher feel " If he fails, I fail."

And the second thing—after the bad lad leaves school, in those critical years between fourteen and eighteen, the temptation of every teacher is to keep most closely in touch with his best boys, the ones who have done well. It is a very natural temptation, but let it always be the duty of the teacher to keep particularly in close touch with the boy about whose future he is the most doubtful. If he has only time to keep in touch with one, let that be the one. Make sure that he gets a job. If he loses it, get him another. Make sure that he has somewhere to go in the evening. He is the one who needs and should receive the most help.

The third thing—I have been wondering whether it is not possible for the teaching profession to play a very great part in the administration of the Probation of Offenders Act. We know that at each police court there is a Probation Officer, a man who is probably as busy as any man in the whole Empire ; who has probably far more than he can do as he would like to do it ; who has far more lads to look after than he can look after with the thoroughness at which he aims. It should be possible for the teachers in that borough to say to the Probation Officer, " We are prepared to be honorary assistant Probation Officers to this extent, that if you have a lad put on probation to you, you can put him on to his old teacher." There should be nobody better in the world as a Probation Officer to a lad than the teacher at his old school. If in any numbers, teachers would come forward and say, " Yes, I am always prepared to help the Probation Officer with any lad who was in my class," we are then going to strengthen enormously the administration of the Probation of Offenders Act.

In conclusion, sometimes people are apt to say, "Why do you worry and spend all your time just about the one in the hundred? You have only one life, I should not bother just about the one. Why not try and improve things for the ninety-nine?" Well, why I ask you particularly to help the bad lad is simply this, that he needs help more than anyone else, and that unless you give your help his life is a most wretched waste.

I was at Wandsworth Prison one evening just before Christmas, and went with the Governor into a ward of the Prison Hospital, a nice cosy little room with four beds. There were some screens round one of the beds, in which an old convict was dying, a man of about sixty, who had probably been in prison for about forty years out of his sixty. The Governor said that everything possible had been done for him, that he was under morphia at the moment, and would not live through the night.

"Have you tried to find any of his relatives," I asked, "to come and see him?"

"Yes," replied the Governor, "but the only one we could find was a brother of his who lives on the South coast, to whom we wrote. He sent back a very nice letter, saying that he had not seen his brother for twenty years, but that he had always been an awful nuisance and expense to the family, and he did not think he wanted to come."

We went on round the prison, and came to the Reception Block where people come on their first arrival from the Police Court. There was a young lad of about seventeen, shy and faltering.

"Have you been in trouble before?" I asked.

"No."

"Is this the first time you have ever been in prison?"

"Yes."

He was just going to spend his first night in prison.

The Governor and I said to each other: "This young fellow is spending his first night in prison, and the old fellow his last. Somewhere in between those two is a great field of effort."

It is in that field of effort that I ask your co-operation.

The Teaching of Poetry in the Elementary School:

Some Criticisms and Suggestions.

By E. M. JEBB and F. M. BUCHANAN.

THERE is no doubt that the teaching of poetry has improved since the unregenerate days of the 'eighties. Authority then was content if the elementary school child was able to recite correctly a set number of lines, explain meanings and allusions, and attain a reasonable proficiency in parsing and analysis. A report on the "Teaching of English in England," which speaks with pleasure of children who recite many separate poems chosen by themselves, who compile their own anthologies, and compose their own verses, bears testimony to the infinitely better conditions in which poetry is now taught, and the infinitely greater appreciation of its value in education. For teachers as well as for children, poetry is coming to have more meaning than of old.

Nevertheless, much yet remains to be done. Established traditions die hard, and that race of teachers whose methods were coloured by the soulless demands of the Board has yet its unconverted descendants. It is still only too common to find poetry regarded as matter for recitation merely, and taught, not for the joy it imparts, but in order to "train the memory" of unfortunate children, and to impress the inspector when he makes his next visit. Even so simple and joyous a lyric as Pippa's Song may still ingeniously be twisted out of its true sphere and made the basis of a lesson showing all the faults of the past and none of the merits of the present. The first step in the perverse lesson which occasioned the above remarks was the writing of the poem on the blackboard by the teacher. The children were then asked to read the poem several times in chorus, copying her exact intonation and expression. To this vocal exercise succeeded the question: "And now, children, what are the two most important lines in the poem?" The class, aware of what was expected, obligingly supplied the required answer, and the only possible climax came with the concluding question: "*Why* should all be right in the world?" Evidently the conviction that poetry exists first to instruct, in the narrow moral sense, is not yet dead.

This method is bad because it ignores the true nature both of poetry and of children. It is inspired almost solely by the outworn requirements of a vanished code. Indefensibly it clings to the past, ignoring the necessary lessons to be learned from a developing science of education.

The "discussion" method (so-called in Birmingham schools) is not open to the criticism that it lags behind the times. On the contrary it illustrates very clearly a decided effort to apply particularly, in the teaching of poetry, general educational principles which modern research has shown to be valuable. For the proper carrying out of this method, individual study of the poem is an essential preliminary, while dictionaries, encyclopædias, and even atlases, form part of the necessary paraphernalia of preparation. When the children have studied the poem for themselves, and made their own notes, a class lesson is taken. In this the substance of the poem is expounded, line by line, or verse by verse, by different children, and difficulties are brought forward, discussed, and explained. It should be noted that there is no implication in the method that the poem as a whole should ever be read aloud, so that its musical appeal is left very much to chance. The conduct of the lesson is mainly in the hands of the children, and the teacher contributes, as occasion offers, to the discussion. His part, though apparently fairly passive, is by no means easy. There are, of course, individual variations in the application of this method in different schools.

On the face of it, the " discussion " method appears to have much to recommend it. Its pioneers, bearing in mind the teaching of modern psychology, have realised the supreme importance of children as individuals, and have seen to it that the poetry lesson should supply them not only with opportunity for self-expression, but also with something to express. Such a state of affairs would have been unthinkable fifty years ago! And it is possible that, guided by a capable teacher, some children, in their efforts to arrive at definite and considered opinions, may, in their own way and in their own time, come to realise that poetry has a more profound significance than they had at first imagined.

Yet we cannot leave the matter here. Method, as such, must consider the nature of the material with which it deals, and the nature of those to whom the material is to be presented. Our concern is thus not with children only or with poetry only, but with both. Is it unfair to suggest that the supporters of the " discussion " method, in their necessary zeal to establish the rights of the child as an individual, have suffered their vision as to the true nature of poetry to become more than a little dimmed? They have ignored certain aspects of the problem, and in their emphasis on the child and his mind, have forgotten that he has also a heart, to which poetry ought to make its first and most direct appeal.

However skilful the teacher, there is surely invitation to disaster in a method which thus tends to present poetry to the child as a succession of verbal difficulties to be solved, rather than as, primarily, an emotion to be felt, and which too often trusts, for the precious moments of first impression, to the literal and unimpassioned synonyms of the dictionary. The class and the teacher who stolidly sought to find in a dictionary an adequate explanation of a difficulty which was no difficulty, afford us here a pathetic illustration. The poetic appeal of Tennyson's line: " And the wild cataract leaps in glory," vanished utterly when the " wild cataract " became, for the duration of the lesson, the "uncivilised waterfall." To realise that recourse to a dictionary may destroy that emotional response to poetry which is the first step on the road to artistic appreciation is not inconsistent with a firm belief in its value as an aid to exact and necessary knowledge.

Again, the method does not make sufficient allowance for the obvious difficulty experienced by children in knowing what they may relevantly discuss. Quick as is the natural response of children to poetry, an invitation to free discussion shows inevitably that, without much training, they are lost. Left to themselves, from the poetic point of view, they know not where to turn. The poetic and artistic qualities of " The

Lady of Shalott " would seem fairly evident, but the unguided interest of the average elementary school child turns more naturally to the problem of whether or no the fairy-lady had bacon for breakfast and who brought it to her, than to the artistic merits of the poem. Not unaided can the child rise above his environment or imagine another different from his own. In the poetry lesson the teacher can and ought to help, not only by taking part in discussions initiated by the children, but also by clearing and preparing the ground. No child, least of all the elementary school child, invariably possesses the background which many poems demand for their full appreciation. The assumption that he does is one of the faults of the method.

It would seem then that the supporters of the method, convinced that it is good for their children to accustom themselves to free discussion and fluent speech, have gradually, perhaps almost unconsciously, come to regard the poetry lesson as valuable in so far as it (1) contributes largely to the general knowledge of the class, and (2) gives practice in spoken English. That these are incidental advantages of the method no one would deny, but to regard them as the goal of poetry teaching is an unexampled heresy. It is not thus that poetry is going to acquire any vital and permanent meaning for the vast number of children who pass through our elementary schools. We have no wish to deny that individual teachers may achieve good work by means of this method and that certain poems may be best considered along the lines indicated. But the teachers will be few, and the poems deficient in the vital spirit of poetry, and therefore better ignored in the class-room.

The danger then in this so-called " discussion " lesson is that teacher and pupil alike forget that poetry is an art, and that, to apply De Quincey's famous distinction, it communicates not knowledge but power. Mr. Greening Lamborn in his " Rudiments of Criticism " is the exponent of a method free from such a disadvantage. This suggestive and helpful little volume has recently been reprinted and is having an increasingly wide influence in the elementary schools. It is probably familiar to all readers of " The Forum," but it may be well to recall the main lines of its thesis. The suggestions to the teacher are based on the conception of poetry as formal beauty and as music appealing directly to the heart through the senses. "The first aim in the teaching of poetry," Mr. Lamborn tells us, " is to reveal poetry as melody and to help the children to read it musically "[1]—and again—" we should frequently select poetry for reading and recitation to the children solely for their beauty of music."[2] The true meaning of a poem can only be discovered when its significance is recognised in the throb of the rhythm, the cadence of the phrasing, or the colour of a poetic image.

Thus the teachers of Mr. Lamborn's way of thought—would that they were more in number !—avoid paraphrase and never ask that destructive question so often heard echoing within the walls of an elementary school, " Now children, tell me *in your own words* what the poet has said ! " For paraphrase they substitute the search for the vital and expressive word, for the query " What ? " the query " How ? " And it is Mr.

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[1] " Rudiments of Criticism," p 20. (Oxford : Clarendon Press.)

[2] Ibid. p. 32.

Lamborn's experience that such questions can be best answered when the children have themselves tried their prentice hands at verse-writing, and thus realised the technical difficulties over which the poet's art has triumphed.

The best approach to poetry in the class-room is, we believe, along the lines suggested by Mr. Lamborn. There is plenty of scope for discussion, but it is discussion relevant to the nature of art. The child is started on the quest for beauty, not on the pursuit of information. Yet, as one meditates on Mr. Lamborn's exposition of his creed, one suspects that like all reformers he has over-stated his case. In treating poetry as formal beauty does he always realise the fullness of its content? "We should choose our children's poems for their beauty of form first and only negatively on account of their matter."[1] So Mr. Lamborn asserts. Now in attempting to determine what is the *subject* of any poem apart from its form, we come up against the difficulty which Alice experienced when she tried to take an intelligent interest in the White Knight's pathetic song before he had sung it to her. There was the actual name of the song and the real name of the song, the actual subject and the real subject. Perhaps the real subject of a poem is something inherent in its form, which cannot be recognised apart from its expression. Yet surely it is in virtue of the subject as well as of the form that the average twelve-year old child prefers "How they brought the Good News" or "The Lady of Shalott" to "Lycidas" or the "Ode on the Intimations." Undoubtedly he may gain a pure pleasure by listening to the music of Milton's and Wordsworth's lines, but the other poems will become a more intimate part of his own imaginative experience. Or if we turn to lyrical poetry surely the experience recorded in Nash's "Spring, the sweet Spring" is more suitable for a child than that in "Take, oh take those lips away." Mr. Lamborn girds at Matthew Arnold for his description of poetry as a "criticism of life," but it is significant that the children at the Cowley Road School enter into their commonplace books from their private poetry reading passages which they have selected "for their bearing on their own lives and interest."[2] And if choice of subject is more important than Mr. Lamborn would seem to allow, is not language also a more difficult medium than he would admit? "It should be a rule without an exception that explanations are only allowable when they increase enjoyment by revealing artistic beauty."[3] But while realising the danger of dictionaries and encyclopædias in the poetry lesson we must remember that often before artistic beauty can be revealed or enjoyment increased the child has to be put in possession, not of the heightened poetic meaning, but the ordinary prose meaning of the language used by the poet. All teachers are familiar with the misconceptions raised by language in children's minds, and the good teacher knows when these misconceptions had best be cleared away. Often an ill-timed explanation may only substitute a "soulless image" for a "living thought." Possibly even the child who in the description of the passer-by to Camelot misread " the abbot on his ambling pad " as the 'abit (one of those good habits she had been advised to acquire !) had a more interesting mental picture than that to which the dull teacher's explanation could have helped her. Yet obviously further knowledge was necessary if the full value of the line was to be perceived. But the wrong association may be even more definitely alien to the beauty of a poem. The town bred child who accepted the line in Keats' " Meg Merrilees "

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[1] Ibid. p. 128.
[2] Ibid. p. 156.
[3] Ibid. p. 123.

" But every morn of woodbine fresh
She made her garlanding,"

and received the impression of a gypsy crowned with a wreath of cigarettes would have been equally astray if she had met the woodbine in any prose catalogue of wildflowers. The cigarette association was too strong for her to allow her to look for another interpretation of the word.

It is not in every line of poetry that the sound is an echo to the sense, and not in every verse that an unfamiliar word or an unfamiliar association can be recognised without the aid of other knowledge. There is a music of poetry, but poetry and music are not identical. Music appeals directly to the senses, but to quote Mr. Basil de Selincourt, "The stuff of literature involves a transcending of sense experience ; for the shape and sound of words do not explain their meaning. To read is to be lifted by a symbolic code into an ideal region ; and in no art is the transition so difficult as in literature between the means and the end."[1] And if for the educated man or woman this symbolic code is difficult to grasp, how much more so for the elementary school child from an uneducated home, to whom standard English is as a foreign language ?

Here then are two different conceptions of the method of treating poetry in the elementary school. The " discussion " method, neglecting the fundamental emotional appeal of poetry, presents it primarily as an intellectual problem to be solved, while the other is concerned mainly with poetry as an art, to be appreciated through the medium of the senses. But though Mr. Lamborn himself admits that " sensuous enjoyment " is only a part of the delight of poetry, he explains neither the nature of the additional delight, nor how it is to be enjoyed. Does he realise that most children reap the fullest measure of enjoyment from that initial reading by the teacher which he rightly regards of supreme importance, only if their minds have been turned in the right direction and prepared to receive first impressions ? Many poetry lessons are a failure simply because the teacher has taken no steps to ensure the necessary impact between the child's and the poet's own imaginative experience. Even the " discussion " method would yield less harmful results in practice if its exponents realised the help to real appreciation afforded by a good introduction.

Mr. Lamborn asserts that " it is as ridiculous as it is fatal to try and make a poem suggest for a child the ideas it suggests to the adult,"[2] but surely there is no reason why some of these ideas should not be the same, if the content of the poem is at all within the child's imaginative grasp ? True indeed that " In Memoriam " would suggest entirely different ideas to the child and to the man, but why should not "John Gilpin" be enjoyed for very much the same reasons by teacher and class? And yet, in order that the detail of that famous ride from Islington to Edmonton be understood by the twentieth century child, he must be able to envisage an English road in the eighteenth century, traversed by chaises and post-boys, and cut by turnpike gates. Surely this is an instance where the teacher may share his wider knowledge with the children and help them beforehand to realise the setting and background. And it is not only unfamiliarity with the background of a poem that intervenes between the child and the poet. Often something unfamiliar in the poet's style or arrangement puzzles the child and prevents him from enjoying the first reading to the full. Here, too, some introductory explanation may clear away an obstacle to artistic enjoyment. The opening of "The Forsaken Merman," for example, with its plunge *in medias res*, "Come, dear children, let us away," is apt to confuse children who are used to stories which "begin at the beginning." Difficulties of language again can often be removed without recourse to the dictionary if the teacher can introduce some of the unfamiliar words or phrases into his preparatory discourse; and even a lesson on Tennyson's "Day-dream" dealing with the familiar story of the Sleeping Beauty can be made more valuable by a suitable introduction. To dogmatise would be foolish, and we are far from claiming that every poem and every class inevitably demand such an introduction, but it is safe to say that in general its value is not sufficiently widely recognised.

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[1] " The English Secret and other Essays," p. 11. (Clarendon Press. 1923.)
[2] " Rudiments of Criticism," p. 124.

Those of us who love poetry do not love it less as we learn to know more about it, and many of us who love it best owe most to sympathetic teachers who have shared with us the fruits of their riper appreciation. Mr. Lamborn thinks that the teacher cannot help the child to realise the background and setting of a poem, and the exponents of the "discussion" method think that the teacher should not even risk imposing his own interpretation by reading the poem aloud to the class. But even by our presence in the class-room we cannot avoid affecting the children's minds and their attitude towards poetry, and the very relationship between teacher and pupil presupposes that the teacher has a wider knowledge and experience which he can in some degree share with his pupil. Doubtless, in the poetry lesson, as elsewhere, it is better to err by excess of silence than by excess of speech, and there are many teachers in the elementary schools who are quite unfitted to read or discuss poetry with their class. But all methods must presuppose the intelligent and sympathetic teacher.

Finally, we have to admit that the schoolroom never furnishes the ideal atmosphere for the pure enjoyment of poetry. In our elementary schools especially our overcrowded classes reduce the chances of poetry making an intimate appeal. To light upon some poem for ourselves, and love it, first for its beauty of sound or pomp of phrase, and then gradually, with advancing years and widening knowledge, to recognise its fuller appeal, is the best road to poetic appreciation. But we have to remember that most of the children in our elementary schools depend entirely on the school for the knowledge which we maintain is necessary for the full enjoyment of poetry. Without such aid, the misconceptions which would be removed in the course of a longer, more liberal education, may remain for ever embedded in their minds—Meg Merrilees with her wreath of cigarettes and the spectral image of that good " 'abit " passing by to Camelot.

We must admit existing conditions in education and suit our means to our end—which is the same as Mr. Lamborn's, "to learn the true value of a work of art, that we may admire and love it." And the teacher can only hope to aid the child in learning its true value if he himself approaches poetry in a spirit of humility and realises that his task is to put the poet and the child into communication—not to interpose himself between them. Wordsworth, in the greatest work on education that has ever been written, condemned the teachers of his own day, who thought they possessed

> " The skill
> To manage books and things, and make them act
> On infant minds as surely as the sun
> Deals with a flower."

and he pitied the victim of such a system who

> " must live
> Knowing that he grows wiser every day
> Or else not live at all."[1]

Such teachers and such victims exist to-day. It must always be remembered that the knowledge which we wish to help the children to grasp in their poetry lessons is that which Wordsworth himself recognised as the best gift of his own school-days,

> "—knowledge rightly honoured with that name,
> Knowledge not purchased by the loss of power."

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[1] Prelude. Bk. V. C. 350-353.
C. 323-325.

The Scaling and Totalling of School Marks.

By FRANK SANDON.

WHETHER we like it or not, we have in connection with ordinary class work to use some system of marks. We want to have a shorthand symbol to represent a boy's abilities, to code and classify him and get a summary, an outline, of his worth. It is impossible with limited human memory to recollect all the successes and failures that any boy makes in his work and to generalise from them. In other words, it is essential that we allot a definite rank to a boy in his class to indicate his standard of ability and attainment in any particular subject. But even this is no easy task : if we have a large class the obvious method is by comparison, moving a boy up or down as he seems better or weaker than his neighbours. This method of comparison, however, requires an excellency of memory and a fulness of scope of judgment that it is impossible to attain in the workaday world. We are thus forced to the method of assigning a numerical basis of each boy's ability, day by day, and compiling from the figures thus given some aggregate that most fairly represents the resultant sum. We allot, in other words, marks which purport to represent some sort of numerical basis of measuring intelligence. A zero mark, however, does not imply a total lack of intelligence and full marks do not imply omniscience. We try, instead, to range our marks fairly well over the available scale, subject to the following conditions :—

(1) The boys at the bottom may often get, frankly or tacitly, encouragement by the allotting of marks even when we should ordinarily grant none at all.

(2) The boys at the top should not always get the maximum possible as it is desirable that they should feel that they have other fields left to conquer.

In practice, however, cases arise where two or more boys, known not to be of equal merit, obtain the same mark, even at the extremes of the range.

When all these considerations are borne in mind we require to obtain some aggregate mark. We must assume that any one subject is sufficiently homogeneous for the variation of each boy's ability and of his consequent marks from day to day to be at random about some mean value for that boy and subject. In this case we are justified in adding all the marks in the subject together if each day is marked on much the same maximum. We are not, however, justified in adding the various subject marks together without further investigation. Thus, to take the case of five boys from the table at the end of the paper :—

Boy.	Arith. Class Work	Arith. Home Work.	Algeb. Class Work.	Algeb. Home Work.	Geom. Class Work.	Geom. Home Work.	Total.	Relative Rank
A	127	38	193	118	69	71	616	1
D	161	59	188	100	70	32	610	2
T	102	56	121	116	85	78	558	5
V	124	62	168	111	59	64	588	3
W	100	90	102	131	65	98	586	4

If we add the marks as allotted during the term A beats W, because the former obtains more marks in such a very heavy scoring subject as algebra class work, while W, who is the better in each home work subject, gets less of a pull on this account. We ought in totalling to allow for the fact that different maxima have been obtainable.

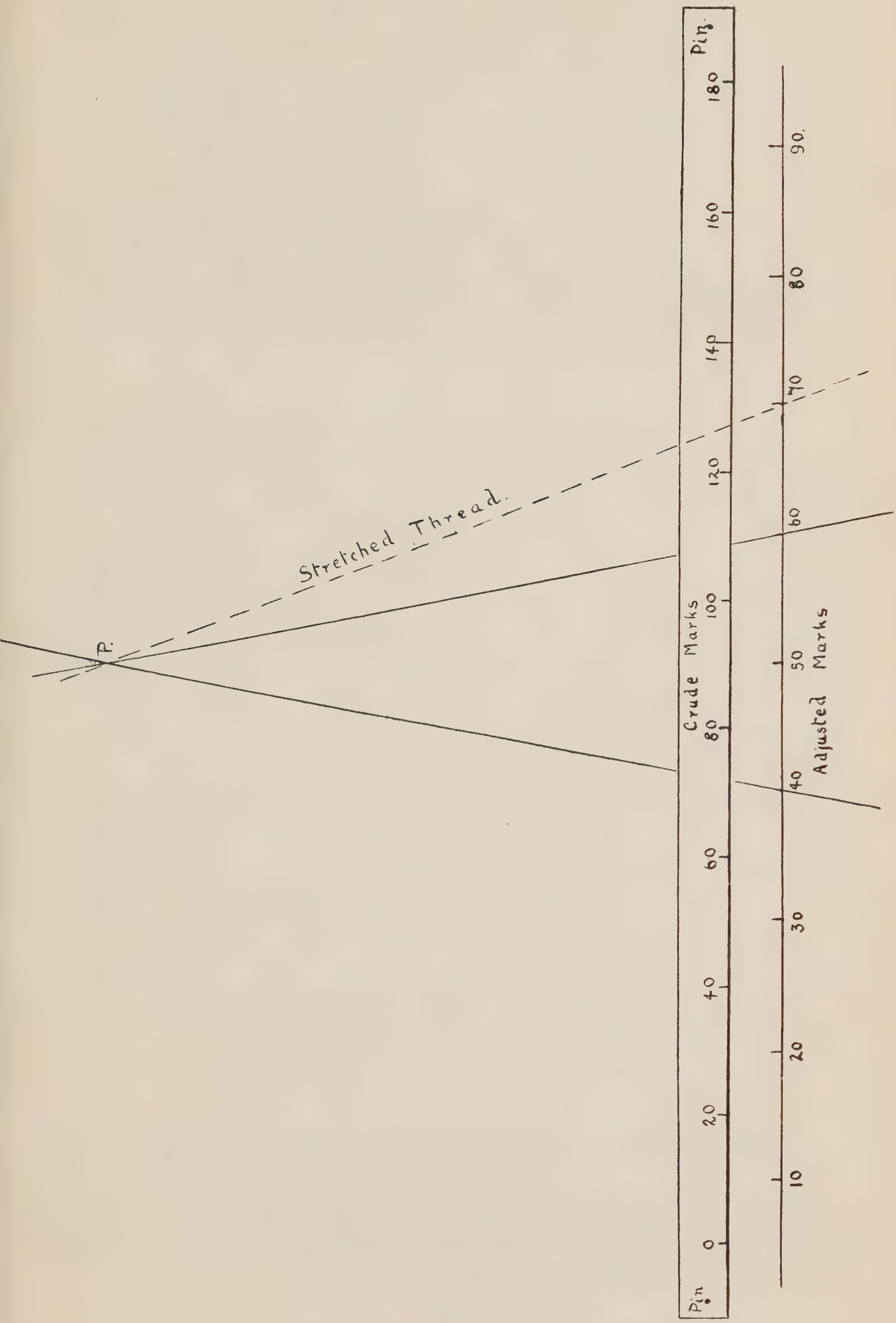
How should this be done ?

One method commonly adopted is by adding on the necessary marks to make the top mark actually obtained the same in each case, say, in our example, 200 in each of the six subjects. But as this is clearly equivalent to a uniform gratuity, in the case of the arithmetic class work, of 200—161, *i.e.*, of 39 marks, everyone will get it, and the relative ranking will not be affected at all.

A similar objection is to be made to the method of adding marks to make the maximum obtainable the same in each case.

Another method is to scale up by ratios, making, as in the last two cases, either the top mark obtained or the maximum obtainable the same in each case, but doing it this time by multiplying by the necessary factors. Thus, if the marks in the table given were based in the maxima (in either sense) of 180, 90, 225, 135, 90 and 135 respectively, we should multiply, to bring all to the common basis of 180, by 2 in the case of arithmetic home work, and of geometry class work, by 4/3 in the case of algebra home work and of geometry home work, and by 4/5 in the case of algebra class work. This has been done, taking maximum to mean the highest possible, to give the following table :—

Boy.	Arith. Class Work.	Arith. Home Work.	Algeb. Class Work.	Algeb. Home Work.	Geom. Class Work.	Geom. Home Work.	Total.	Relative Rank.
A	127	76	154	157	138	95	747	2
D	161	118	150	133	140	43	745	3
T	102	112	97	155	170	105	741	4
V	124	124	134	148	118	85	733	5
W	100	180	82	175	130	132	799	1


Pin
180
160
140
120
100
80
60
40
20
0
Pin
Crude Marks
90.
80
70
60
50
40
30
20
10
Adjusted Marks
Stretched Thread.
P.

We notice at once that the effect of this method is to make W top and to put him above A. This is due to W getting more credit than was previously given in the home work subjects in which he is the better. If, however, we read the lists down we shall realise that the method is not perfect. The range of marks, as adjusted, in arithmetic home work, is from 76 to 180, *i.e.*, 104, but in algebra home work it is only 133 to 175, *i.e.*, 42. This means that in algebra home work even as adjusted a certain number of marks are comparatively easy to get, but that any excess of this, every extra mark; is harder to earn here than every extra one above the rather lower minimum obtained in the case of arithmetic. Some subjects, in other words, are not allowed to pull their full weight in discriminating between the relative merits of the various boys. The actual level of the marks is not the important thing : it is rather the way they scatter the marks and hence help us in discriminating between boy and boy that is important.

We should, therefore, aim at so adjusting the marks that in subjects that are recognised as being of equal importance the marks are equally scattered. The scatter is, however, not best measured by the range of marks between the top actually obtained and the bottom actually obtained. This is not so representative of the scatter of the class as a whole, since the top and bottom boys may be exceptional, as is the range between the marks of boys a definite way from either end of the order of merit. We might, for example, take the range between boys one-tenth or one-eighth of the way from the top to the bottom. It is convenient to take, however, the boys a quarter of the way from either end. The marks obtained by such boys are called the quartiles, and our object is to weigh each set of marks so that when the subjects are considered of equal importance the distances between the quartiles in each case, the interquartile range, as it is called, is the same.

The quartiles play an important part in statistical theory. In the case of what would be described as a normal distribution of marks, and there is evidence in the figures attached that the law applies to a large extent here, the fundamental measurement, after the value of the mean, is the "standard deviation," the root mean square deviation from the mean. If this is represented by σ then the quartiles lie roughly at a distance from the mean called the probable error (P.E.) where P.E. = .675 σ. It is a property of the normal distribution, and of most other distributions that are not unduly skew, that all but say one case in each thousand lie within a distance of 3σ from the mean. If we put the mean as 50 and want all our marks to lie between 0 and 100 we must have

$$\sigma = \frac{100 - 50}{3} = 15,$$ say, and the P.E. = 10. In other words, we can scale our marks by putting the quartiles equal to 60 and to 40. In exceptional cases, as a result, we shall have marks that lie outside 0 and 100. If this idea present any difficulty and it is required to avoid such apparent anomalies the quartiles can be equated to, say, 42 and 58 or 45 and 55 or to 140 and 160. The 40—60 basis is, however, the most convenient and is the one adopted in the following work.

We have then to find the quartiles. If there are n boys in the class all ranked properly then the ranks of the quartiles are as follows :—

Upper Quartile is of rank $n/4+\frac{1}{2}$.
Half-way Boy—the Median—is of rank $n/2+\frac{1}{2}$.
Lower Quartile is of rank $3n/4+\frac{1}{2}$.

The marks corresponding to these ranks must therefore be found in the unadjusted list* and equated to the required values of 60 and 40. This is best done by means of a nomogram : any other method requires rather an awkward transformation formula and heavy work, with its liability of mistake. It is better to use the unadjusted marks rather than a method that may lead to big errors in computation ! The nomogram method is as follows : On a piece of graph paper (see diagram) is ruled a line graduated between 0 and 100. This is the line on which we shall read off the adjusted marks. The points 40 and 60 on this are joined to any point P, conveniently but not necessarily taken on the perpendicular to the line through the point 50, and at some distance along this from the graduated line. A moveable slip of paper, bearing a scale graduated 0—50, or whatever may be the range of the crude marks that we wish to adjust, is then moved about parallel to the first scale until its quartile values fall exactly on the two straight lines. Pin the scale down here and at the point P place a pin round which is looped a black thread. Stretch the thread tightly from P over the crude mark on the temporarily fixed scale and the required adjusted mark is given where the thread cuts the first scale.

Thus the diagram shows the adjustment for the crude arithmetic class work marks. The quartiles are at 109 and $71\frac{3}{4}$† and it will be seen that the lines from 60 and 40 to P pass through these points. The dotted line shows that to the value of 127 (crude) corresponds a value of 70 (adjusted). The marks need only be read to the nearest whole number as the error in determining σ and thus in determining the P.E. of our crude distribution by taking the quartiles is itself of value one or two marks in the case of small samples of classes less than 100.

If we adopt this method on the case of our five boys (using, however, quartiles of the class as a whole) we have the following results, abstracted from the bigger table at the end of the paper.

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*In the case of fractions the best value to take is that given by proportional parts : thus if the rank 6 has mark 124 and rank 7 one of 104 then rank $6\frac{3}{4}$ can be put as having mark 109 $(=124-\frac{3}{4}$ of $(124-104))$.

†These values were taken owing to the use of a wrong formula for the quartiles. These were taken as $(n+3)/4$ and $(3n+1)/4$, giving quartiles where $n=24$ of rank $6\frac{3}{4}$ and $18\frac{1}{4}$ instead of $6\frac{1}{2}$ and $18\frac{1}{2}$. This error occurs throughout the table but is not big enough to affect the results appreciably.

Boy.	Arith. Class Work.	Arith. Home Work.	Algeb. Class Work.	Algeb. Home Work.	Geom. Class Work.	Geom. Home Work.	Total.	Relative Rank.
A	69	45	77	67	59	68	385	2
D	87	59	75	59	60	36	376	4
T	56	57	52	66	75	73	379	3
V	67	61	68	64	49	62	371	5
W	55	78	46	73	55	89	396	1

The effect of this scaling has been to put T above D : the former is the harder worker at his home work but the method of adjustment given in the earlier table failed to allow sufficiently for this. The various subjects now all pull the same weight, as was required.

The method has, however, a further advantage. Although the marks are not strictly distributed normally (in particular the distribution is cut short of a tail at the bottom due to the corresponding sample of boys of a normal population not being admitted to the school) we notice that the commonest marks are those round about the median at about 50, that values near this (if we consider the big table) are more frequent than those far from it and that among the 144 adjusted marks not one lies more than 3σ from the mean, the lowest of all being 11 and the top 94. We can thus, simply by glancing at a boy's marks, say at once what sort of work he does in that subject compared with the ordinary run of the class as a whole. We can make a table such as the following :—

Differing from the Mean by	Up to $2/3\sigma$	$2/3\sigma$ to $4/3\sigma$	$4/3\sigma$ to 2σ	2σ and beyond
In defect, with marks between	40—50	30—40	20—30	20 and less
Description	Poor	Rather bad	Bad	Very bad
In excess, with marks between	50—60	60—70	70—80	80 and over
Description	Fair	Fairly good	Good	Very good

In actual practice (since as above remarked the distribution is not quite normal) the writer finds it more encouraging to use the following :—

Up to 20	20—30	30—40	40—50	50—60	60—75	75 and over
Very bad	Bad	Moderate	Fair	Very Fair	Good	Very good

By use of this table we can quite fairly describe a boy's work. We can say at once, for example, that F (in the big table) is, relatively to other boys in this class, good in arithmetic, very fair in algebra, fair in geometry home work and moderate only in geometry class work. The marks give more general impressions : T is distinctly good in geometry, P is a steady and consistent worker of slightly more than average ability in all subjects, D is " slacker " in his home work than in his class work, and G on the other hand is distinctly poorer in his class work.

We notice further that the rankings as obtained by crude summation are much the same as those given by the summation of the adjusted marks. This would probably not be so marked in the case of subjects not so highly intercorrelated as are the various mathematical subjects considered, but in our case no position is altered by more than three places. The exceptional boys, good and bad, maintain their relative positions in spite of the adjustment of marks : the thicket of mediocrity (or of normality, if you will) about the mean keeps the same position. But among boys whose abilities vary from the average to an appreciable extent in one or more subjects the adjustment has distinct effects in their final rankings. The corrections thus obtained are well worth the extra trouble, particularly as the work is accompanied by giving such easily comprehended " absolute " marks.

SUMMARY.

(1) The best way of ranking a class of boys is by an aggregate of marks.

(2) If the marks in each subject are brought to the same maximum (either marks actually obtained or marks obtainable) whether by addition of a uniform gratuity or by ratios, the subjects are not necessarily weighted equally.

(3) The subjects can be weighted equally enough for practical purposes by making the quartiles in each case the same.

(4) If the upper quartile is equated to 60 and the lower to 40 all the other marks are given by a linear transformation, best worked graphically.

(5) The marks so obtained follow practically the normal law of distribution and with rare exceptions all lie between 5 and 95.

(6) Such marks can be regarded as absolute and definite descriptions can be attached to each particular value.

(7) When subjects are highly intercorrelated the aggregate ranking obtained by use of adjusted marks only differs from the crude aggregate ranking in the case of a few boys.

NOTE.—Although an elementary knowledge of Statistics (*vide, e.g.*, Prof. Nunn's " Teaching of Algebra and of Trigonometry ") and of Nomography (*vide, e.g.*, Durell and Wright's Elementary Algebra, Part II) is a commonplace of the age, the writer desires to state that he owes the idea of using the string nomogram for adjusting marks to Prof. T. P. Nunn, who described such a method at a lecture to the London Branch of the Mathematical Association in 1921. Prof. Nunn's method involved the calculation of the standard deviation in each case, and it is submitted that the method of the above is as correct theoretically, and simpler practically.

	Crude Marks.							Rankings.							Adjusted Marks.								
Boy.	Arithmetic, C.W.	Arithmetic, H.W.	Algebra, C.W.	Algebra, H.W.	Geometry, C.W.	Geometry, H.W.	Total.	Arithmetic, C.W.	Arithmetic, H.W.	Algebra, C.W.	Algebra, H.W.	Geometry, C.W.	Geometry, H.W.	Total.	Arithmetic, C.W.	Arithmetic, H.W.	Algebra, C.W.	Algebra, H.W.	Geometry, C.W.	Geometry, H.W.	Total.	Rank.	Correction to be applied to Crude Rank to give Adjusted Rank.
1	175	91	207	131	85	98	738							Top							454 = 76%		
6¾	109	61	144	103	66	61	565							Upper Quartile = 60							372 = 62%		
12½	87	47	126	82	56	49	461							Median							306 = 51%		
18¼	71¾	30	85	60	47	36	329							Lower Quartile = 40							236 = 39%		
24	35	13	47	35	21	26	226							Bottom							181 = 30%		
A	127	38	193	118	69	71	616	4	17	2	3	4*	4	3	69	45	77	67	59	68	385	4	+1
B	164	91	175	113	65	60	668	2	1	4	5	7*	7*	2	88	79	71	65	55	59	417	2	0
C	175	83	207	124	69	80	738	1	3	1	2	4*	2	1	94	74	82	70	59	75	454	1	0
D	161	59	188	100	70	32	610	3	7*	3	8	2*	21	4	87	59	75	59	60	36	376	6	+2
E	71	17	87	35	50	34	294	19	22	18	24	16	19*	19*	40	32	41	28	40	38	219	21	+2
F	124	65	137	101	47	47	521	5*	6	9	7	18*	13*	9	68	63	58	59	37	48	333	9*	0
G	52	39	66	50	21	38	266	23	15*	23	21	24	17	23	30	46	34	35	11	41	197	23	0
H	77	55	142	76	56	56	462	14	10	8	13*	12	10	12	43	56	59	47	46	56	307	11*	−1
I	101	24	143	76	70	47	461	9	19	7	13*	2*	13*	13	55	36	60	47	60	48	306	13	0
J	75	47	97	66	36	37	358	16	12*	17	16*	21	18	15	42	51	44	42	26	41	246	15	0
K	59	19	81	38	48	47	292	21	21	19	22*	17	13*	21	33	33	39	29	38	48	220	20	−1
L	54	39	101	59	37	51	341	22	15*	15	19	20	12	18	31	46	45	39	27	52	240	18	0
M	94	47	146	94	59	34	474	11	12*	6	11	9*	19*	11	52	51	61	56	49	38	307	11*	0
N	76	32	71	66	51	60	356	15	18	20*	16*	15	7*	16*	42	41	35	43	41	59	261	16	0
O	61	20	47	38	34	26	226	20	20	24	22*	22	24	24	34	34	27	30	24	32	181	24	0
P	104	59	135	96	68	65	527	7	7*	10	9*	6	5	8	57	59	55	57	58	63	349	8	0
Q	72	44	68	60	22	28	294	18	14	22	18	23	23	19*	40	49	34	40	12	33	208	22	+3
R	35	16	71	51	58	53	284	24	23	20*	20	11	11	22	21	31	35	36	48	54	225	19	−3
S	84	13	98	69	47	45	356	13	24	16	15	18*	16	16*	46	29	45	44	37	47	248	17	+1
T	102	56	121	116	85	78	558	8	9	13	4	1	3	7	56	57	52	66	75	73	379	5	−2
U	74	49	135	96	55	31	440	17	11	11	9*	13*	22	14	41	52	57	57	45	36	288	14	0
V	124	62	168	111	59	64	588	5*	5	5	6	9*	6	5	67	61	68	64	49	62	371	7	+2
W	100	90	102	131	65	98	586	10	2	14	1	7*	1	6	55	78	46	73	55	89	396	3	−3
X	89	82	132	87	55	57	502	12	4	12	12	13*	9	10	49	73	56	53	45	57	333	9*	−1

* Indicates that two or more boys are bracketed equal.

The Demonstration School—and After.

By J. J. FINDLAY.

I should like to supplement the admirable papers by Mr. Wyatt in the last two numbers of this journal by explaining further the functions of the Demonstration School as originally conceived by those who first introduced the term: thereupon I may offer some comment on the developments which Mr. Wyatt now anticipates. "Demonstration" was first applied as a title for schools by the Joint Committee established by the Incorporated Association of Headmasters in 1896 to investigate the training of secondary teachers; many other societies, including the T.C.A., took a share in the inquiry. The actual report which the I.A.H.M. published has long been out of print, but as I had acted as the secretary of the committee and was shortly afterwards engaged in writing *On the Study of Education* for a volume of Sadler's Reports and Inquiries, I took occasion to embody most of the recommendations of the report in my essay (Vol. II., Board of Education, 1898). It was not, however, for another ten years that the term came into practical use: it was adopted by the Board of Education in the Regulations for Training Colleges (1908 or 1909) in a clause which has remained part and parcel of the system of training ever since. Now that Morant has passed away there can be no harm in recording how that clause originated and what it was designed to achieve.

A few years after the issue of the Joint Report a small endowed school called the Fielden Demonstration School had been set on foot in the Manchester University to enable its Training Department more adequately to carry out the policy advocated in the report. In addition to myself as secretary, both Withers, my predecessor, and M. E. Sadler, who was giving Manchester his unique services as part-time professor, had been members of the Joint Committee. Of course we wanted both money and recognition: when, therefore, the Birrell Bill of 1906 was being piloted through the House of Commons we staked a claim, and no difficulty was found in putting through the proposal of one of our Manchester M.P.'s, viz., that a sentence should be added to the Bill empowering the Board of Education to make special grants for the maintenance of demonstration schools attached to institutions for the training of teachers. The Government had no objection, for Morant advised his chief that this was a sound move and would involve neither additional cost nor local complications. The Conservative Opposition were cordial, for Mr. Balfour, as President of the British Association, actually subscribed to the appeal fund of the Fielden Demonstration School and understood the arguments.

The Birrell Bill foundered in the House of Lords: its author gaily sailed away to govern Ireland and Mr. McKenna reigned in his stead, without any ambition to burn his fingers with another attempt to amend the Acts of 1902 and 1903 in the interests of Liberalism. But everyone desired to see the few non-contentious clauses of the Birrell Bill put on the statute book, so an agreed Bill was submitted and passed in 1907. Among other clauses we in Manchester understood that the little point about demonstration schools would go through as non-contentious. To our amazement we found that it had been dropped, and it took many months before we were able, by discreet lobbying in the House of Commons, to unearth the trivial circumstances which caused the disaster. The Minister in charge would say nothing, the thing was done and there was an end to it ; the Permanent Secretary, loyal then as always to his political chiefs, could reveal nothing. I revive the incident now, not so much because it shows what vigilance is needed when one has to deal with educational politics, as because it affords a clear view of the place of the demonstration school in the scheme of public education.

The Act of 1907 was an " agreed " Act : nothing was to go into it that anyone in the House of Commons objected to. But a single member of the Liberal party (not at that time very conspicuous, although he has since that day become a Cabinet Minister and only yesterday found himself excluded from Westminster) intimated to the Minister that he must oppose that clause, so it was at once struck out as " contentious." No argument, no inquiry—the clause came out, the rest of the Bill became law without debate. Now when, a twelve month or more later, I discovered the culprit and asked him most respectfully what he meant by it, he was quite frank. He knew nothing about demonstration schools—why should he, it wasn't his line ; but supporters in his constituency advised him that the clause would lead to friction in their city : they asked him to oppose, and oppose he did. He did not even know that a Liberal M.P. from Manchester had actually introduced the clause into the Birrell Bill. He was very sorry, but he had done what he thought to be his duty by his constituents. It transpired that there had been jealousy between the secretary of the city education committee, flushed with its powers under the Act of 1902, and the principal of an old-established training college within the city boundaries. The latter, who knew of the interest taken by the T.C.A. in the demonstration school idea, had indiscreetly hinted to this secretary that when this clause was put into operation, he would emancipate the voluntary school which " belonged " to his college from the control of the L.E.A. The secretary saw the point at once, and begged his committee to take instant action : the city member was approached, and our clause was killed. I need not continue the story. In subsequent years, right up to 1918, various Ministers of Education were invited to give half an hour's attention to the subject and consider the restoration of this clause to a Government Bill, but they have been otherwise occupied. The only two men who knew what benefit it would confer were Mr. Balfour and Sir Robert Morant.

Failing legislation Morant did what was possible by administration ; but he knew that the sentences put into the Training College regulations (and subsequently into corresponding regulations for secondary training) could not fulfil the real design of the Demonstration School. For the essence of the situation is that the educational control of this type of school, control, *i.e.*, both of its curriculum and its corporate life, should rest with the Training College, and the school staff should be closely identified with the staff of that institution. Here and there, as Mr. Wyatt points out, this relationship is partially secured within the existing law, when an L.E.A. is sufficiently enlightened to see that intimate bonds between school and college are essential to thorough demonstration ; but very few Authorities are prepared to delegate even a fraction of control for a purpose which they do not understand. A nominal compliance with the existing law is easily arranged: one or two P.E. Schools of adequate reputation in the locality are labelled "Demonstration School" and the College and School concerned make the best of the situation. If little benefit is secured at least no harm is done and at any rate the idea is kept alive that lecturers on Method and Curriculum *ought* to have close relations with children and their teachers. Strictly interpreted the terms of the paragraph in the Training College Regulations are inconsistent with the Act of 1902, as Morant well knew when he countenanced our proposal in the Birrell Bill and added subsequently this forlorn paragraph to make the best of a bad business.

The real mischief of the situation is that Training College lecturers have been led to accept the situation and to believe that the responsibilities and interests created by the situation before 1902, when a school was part and parcel of the denominational college, are superfluous. The idea has prevailed that a "demonstration *lesson*" may serve for a substitute: as if a single lesson, apart from the whole scheme of education, can help either student or lecturer to get at the heart of things. The use of the term "demonstration lesson" is in fact a discouraging sequel to the whole story. The label "demonstration school" itself was selected, in place of the earlier terms, "model school" and "practice school," to indicate that demonstrators, on a par with the demonstrators in a laboratory, would be assisting students (working in the school as students work in a laboratory), to gain continuous and comprehensive experience of educational principles expounded in the training college and demonstrated week in, week out in the school, where lecturers and demonstrators unite to associate theory and practice free from the steam-roller uniformity of L.E.A. bye-laws.

Now at this point confusion may be introduced by raising comparisons with what is called the Experimental School. It will be said that if college lecturers and school teachers serving as demonstrators secure freedom to control a school they will try experiments. Certainly they will: any teacher of any worth tries experiments, in the popular sense of the word "experiment," but as regards "control" experiments, where parallel classes are compared after being taught on two contrasted methods, it is certainly more reasonable to make the comparison in a large school of the ordinary type where the scholars are not repeatedly subject to novelties.

I entirely differ from Mr. Wyatt on this matter and should be sorry to see any school established in England on the basis of the Lincoln School, New York, to which he refers. Whatever may be the case in institutions where animals or dead matter are experimented upon, I cannot conceive that we should do right to set apart a group of teachers and children for the *sole* purpose of trying new ideas. Mr. Wyatt refers in a footnote to the Fielden School and would like to classify it as an Experimental School, but he is incorrect, unless he will also award that title, say, to the Perse School, Cambridge, or any of a hundred other schools where new ideas in method and curriculum are being worked out, with a clear and bold application of theory.

The one principle that marks off the demonstration school from all others is its relationship to the staff of its Training College: the College expounds theories of curriculum, method, corporate life; the class teachers, demonstrators and colleagues of the lecturers conduct the school so as to show so far as conditions permit how these theories work out in the daily life of scholars, and where the conditions do not permit they show the reason why. Students are there not as casual visitors but for weeks at a time, imbibing the spirit of the place and realizing how great principles find their issue in the common round of children's lives. Now since lecturers and demonstrators are, or ought to be, in the forefront of investigation they will obviously be in a position to examine critically and test with enthusiasm any new proposals which their theory suggests as sound: if you like you can say that they will be experimenters.

When, therefore, Mr. Wyatt limits a demonstration school by saying that " its departures should not be radical " I cannot follow him. No rule can be laid down, for its distinctive features, whether radical departures or not, are simply those which the lecturers working together with the demonstrators as a united staff hold to be sound. If these teachers are radical, they will demonstrate with a radical programme. There is no reason why they should not depart from the conventional practice of other schools, for it is presupposed in our English system of training that the student before being certified as a practitioner will go for additional practice to ordinary schools, primary or secondary, within his reach. He may see experiments in some of these or he may not: he may see experiments in the demonstration school or he may not. In neither case is he 'out' as a beginner to see and discuss novelties; he goes to his demonstration school because there he can best experience what his lectures in theory amount to.

Let us take for illustration the problems of self-government in schools and the Dalton Plan. Mr. Wyatt shows us how fundamentally the application of the psychology and sociology underlying these reforms will affect the whole business of training if they once secure acceptance. As things now are we discuss them in the College or Department of Education, but have to leave the responsibility for demonstration to any school in the locality which may happen to be pioneering in these directions, and a casual visit is all that most students can be permitted, as a pretence of associating theory with practice. I venture to say that if our Training College lecturers, with their psychological insight and wide experience had been privileged to work out their ideas and test them in their own demonstration schools the whole profession would have been powerfully aided, in discerning the mixture of truth and error which the enthusiastic advocate of " plans " too often present to us.

What Mr. Wyatt has to say as regards the teaching of individuals, as an alternative to perpetual class teaching, is immensely important when viewed in relation to professional training. As things now are our students cannot get to know individual children: they are not examined and certified on the basis of any such experience; it is still held that the acquirement of habits in class routine and lesson giving is the central problem of practical training. But if a College had in its charge a group of children, even a small group, for whom the College was directly responsible year in, year out, children whose disposition and attainments became a matter of scientific study as well as of personal regard, the attitude of the student would be revolutionized. He would discover that we really mean something when we assert that the personality of individual scholars should be the central interest of a teacher's professional life. Alas! we say and do not!

It is not likely that reforms, which seemed worth while twenty years ago will find favour in the same shape to-day: nor am I concerned to write as *laudator temporis acti*. Since then the main occupation both of lecturers and of organisers of training has centred now the need for equipping teachers as specialists, and the pendulum has swung right away from the wider and perhaps vaguer problem of equipping the neophyte with a more general interest in child psychology and in school life. The pendulum appears now to be swinging back again, if the stir of interest in the topics I have mentioned is a genuine manifestation. I devoutly hope that this may prove to be the case, for I have never disguised my distrust of the attention paid to specialism in the training college curriculum. But if our lecturers and students are to occupy themselves closely with the study of children, I prophesy that they will demand, as resolutely as some of us demanded at the beginning of this century, that they should be entrusted with responsible charge for the schooling of at least a few children, whose development will engage their energies, both as a scientific interest and as an inspiration. Call such an institution a demonstration school or what you please to call it, it will discharge the same function as was met by Kay-Shuttleworth in his work at Battersea when Training Colleges first began and as we witness it to-day in the training of teachers for nursery schools.

The Ideas of Girls as to Family Relationships.

By ELLEN L. MELVILLE.

THE " old world " flavour of the views expressed by a class to whom the story of Griselda had been told was, in part, the stimulus of the following inquiry, directed towards ascertaining the attitude of girls nearing the school-leaving age to their responsibilities as daughters and as future wives and mothers. The girls concerned, whose ages ranged from twelve to fourteen years, lived in a working-class district. They were invited to answer the questions given below. No time was allowed for previous discussion or preparation, and all fear of unpleasant consequences following indiscreet or too candid expression of opinion was first dispelled.

The questions were :—

I. What in your opinion are the duties of daughters ?
II. What are the duties of wives and mothers ?
III. Are the duties of husbands and sons the same as those of wives and daughters ?

Forty-seven answers were handed in by a class of forty-seven girls, though no child was obliged to answer. A brief type of response was general, two lines being sufficient for the first question in some cases. The two longest answers to any single question cover twenty and nineteen lines respectively. For an age whose family sanctions often appear to be in the melting pot, the answers are not without significance, and I give below a condensed analysis of their main characteristics.

ANSWERS TO QUESTION I.

(*a*) *Relationship to parents as helpers.*

Forty-six out of the forty-seven answers definitely recognise the filial relationship. The exceptional answer concentrates without delay upon the necessity of putting oneself to a trade, working oneself up to a high position, and ultimately acquiring " a business if possible the same as they have been working at." It was not surprising to find this same girl stressing the value of self-reliance in her answer to a different question put to her on another count, nor that in answering Question III she permits no interference by a man in the duties of wives and daughters. Yet she is very insistent on the wifely duties of keeping a clean house and avoiding gossip lest home or children suffer.

Forty-three answers are suggestive of the special duty owed to the mother as distinct from or superadded to that owing to both parents. Thirty-three of these give a prominent place to the expression " helping mother." The remaining ten do not actually mention the mother, but define the daughter's duties in terms of helpful housework and child welfare.

Nineteen of the forty-seven answers express in stated terms the duty owing to both parents, though one explains, " The way to do this is by helping mother." Whether the large numerical balance in favour of the sense of obligation to the mother carries with it a correspondingly greater affection for her, would involve a probing of children's emotions neither desirable nor easy. The writer at least is not prepared to invade this " Holy of Holies " of the child's inviolable right to its own liege loves. There may be here an evidence of a development of that maternal tenderness to which we now attribute so much. Many of the answers do express a strong feeling of pity for overburdened and worried mothers. " The duties of daughters I think is to help their mother whatever way they possibly can because their mother did quite a lot of things for them when they were small." " A daughter's duty is to help her mother and try to pay back all her mother did for her when she was young." " Mothers cannot be expected to do all the home duties themselves." " A daughter's duty is to endeavour to lighten the work and worry of her mother." Question II produces many similar answers, in which the feeling of sympathy is more to the fore than in those just quoted.

(*b*) *Relationship of obedience.*

Eighteen answers give obedience to the mother or to parents as a *sine qua non* of a daughter's duty. Respect and honour are required in some, and in a very few the application of these obligations is extended to include all elders. Confidence in parents is occasionally advised. This straightforward recognition of obedience gives one " furiously to think " in these days of the advocacy of free discipline. " Run errands willingly," " Do whatever is asked of them right away," " Give no trouble," " Cause as little expense and trouble as possible," " Make parents happy and help mother," are typical extracts. Highly reminiscent of probable falls from virtue is the admonition of one of these child mothers. " Let there be no ' wait a minute,' no contradiction." The same child is very anxious that " after an absence mother shall always find she has a daughter to trust."

(*c*) *Sense of independence.*

In the answers to the first question the realization of the daughter's right as a human being is not much in evidence. The third question does provoke or awaken such feeling. One answer is, however, outstanding and suggests that the writer, like Miranda, was already finding her " brave new world, That has such people in't." It gives the duties owing first, " caring for the kiddies, dish washing, cleaning the step, going messages to releive mother." Then follows a significant alternative. " If not needed in the house she should get work. At night she would help with the darning, mending and sewing. But this cannot be expected every night. Socials, picture houses and parties should be open to her at least once a week. But even when she gets a sweetheart and gets married, she should never forget to give a helping hand in the house she has left."

In two cases only is a note of grumbling struck. The first of these opens with the statement, " The duties of daughters are very great," whilst the second girl forestalls her third answer by at once insisting that a girl's duties differ greatly from a son's. " Girls have to work all day, first they get up and dress their young sisters for school, and then get themselves ready for school. When they come from school they have to wash the dishes, mind the baby, and then hurry to school again. At night they have to wash the tea dishes, mind the baby, see that there is coal and water in, do their homework, polish the sisters' boots for school, and they have to do many more things." This attitude is not characteristic of the answers to Question I, however. The sense of humility and a thankful willingness to help mother is their almost universal feature. Thus a very respectable catalogue of possible ways of helping closes in another girl's case with the simple remark, "It will always be a little help." A desire for independence of another sort is certainly present in the girl who "helps mother when not well by taking a cup of tea or oxo to her in the morning, and if necessary staying away from school to look after her."

(*d*) *The sense of companionship.*

Perhaps this would not be thought of in connection with "duty." In any case it is nowhere noticeable, though I find a faint echo of its existence when one child adds to the usual obligations, "Girls should also give a little of their spare time to their mothers." Is there no time for social companionship with their parents for these hard worked little daughters of our industrial classes? Are there no social interests in common? Ordinarily the state of affairs pictured shows that when the mother goes out the girl stays behind in trust, and when the girl is free the mother is tied. Happy mothers, whose social environment gives them opportunities of reading or playing with their daughters, of entering with them into a host of companionable activities!

ANSWERS TO QUESTION II.

The duties assigned by the girls to wives and mothers fall into four main categories:—

(1) The care of the house, mentioned by thirty-eight girls.
(2) The upbringing of children, mentioned by thirty-nine girls.
(3) The provision of food, mentioned by twenty-nine girls.
(4) The provision and repair of clothing, mentioned by nine girls.

(*a*) *Sympathy for mothers.*

The wearisome and arduous nature of the mother's and wife's duties is much emphasized. "Mothers have a busier time than anybody. They have to wash, iron, clean up, feed the animals and hens, get the meals ready, and generally help in the darning and cooking. They also have to look after their children, wherein a wife has all other duties except this." The answer of this girl to the third question reveals the same tender thoughtfulness for her mother. "If a son has a sweetheart, and has to buy her chocolates and presents, he should not forget his mother, a bar of chocolate is like a box full if he only knew, to her." The girl who described the duties of daughters as "often very great," prefaces her list of wifely duties by the remark, "The duties of wives and mothers are greater than those of daughters," and closes it thus, "After all this she has not much time for enjoyment. A mother has similar duties to perform but she has also to look after her children." "Wives and mothers have to work all day the same as daughters . . . and if they have nothing more to do after that they take the baby out for a walk." Thus writes the girl whose account of a daughter's duties ends, "And they have to do many more things," though her brother will not even "hold the baby." In this connection I quote also from one answer a spirited claim for leisure and outside interest for the mother. "Of course one cannot be expected to give up everything for housework. Women should also have their holidays as well as men, for however could anyone be expected to work without having a rest sometimes."

(*b*) *Conjugal relationships.*

One girl alone requires the wife to "honour and obey her husband." Yet another says "Women were sent to earth to look after men therefore a wife's duties are to keep a nice clean house and everything else of which she is capable." "Women must see that no trouble worries their husbands," is the view generally held. "Make home pleasant." "Cook appetising dishes for him as it is a well-known saying that the way to a man's heart is through his stomach." "Always have clean neat houses so that when husbands come in they will not want to go straight out again." "Her husband should feel that whenever he may go home the fire will be burning and the house clean and cosy. Not that she will be gossiping, and the ashes nearly meeting him at the door as he enters." The wife is not represented as wishing for further companionship in the husband's outside pleasures and recreations, as a rule, in this set of answers.

(*c*) *Care of children.*

Many wise maxims as to the care and discipline of children occur. The following are examples. "A mother's duty is to look after her children though I do not say that in looking after them she should neglect her husband." "Her first thoughts must be for her husband and children to her utmost ability." "A mother's duties are to bring her children up properly without spoiling them. A spoilt child is never liked no matter where he goes so a mother if she loves her child should see that he or she gets fair play in future years." "Her duty is to guard them from the influence of children who are spoiled and all companions apt to leave a bad example. It is their duty to chastise the child when needed and explain why they are corrected." "A mother's duty is to keep her children clean in body and soul, to love each as equally as another and teach them to be honest and most of all to fear God." "They should be taught respect and obedience but at the same time they should be allowed to exercise their will power." "Children are to be well mannered and honourable and love their enemies." Mothers are also enjoined to see that there are no pins in the children's clothes.

Finally, the laying out of money and augmenting the income by "doing washing if necessary" are women's duties. A sense of social convention urges one girl to emphasize the need for a "clean house at all times. Then she need never be ashamed of visitors," whilst the injunction against gossiping recurs several times.

ANSWERS TO QUESTION III.

I find these answers very enlightening.

"Not by a long way," is the emphatic commencement of one girl's argument, "No decidedly not, women's duties are far harder and much more tiresome than men's," of another girl's.

Twenty-seven state the duty of men and sons to consist primarily in earning wages. Fourteen others imply the same by their description of the work to be undertaken. Six make no reference to men's value as wage earners, nor to the type of work they should be employed in chiefly. The number of complaining answers is thirteen, a large increase on those for Question I. On a closer scrutiny, four of these might be eliminated. The remaining nine open fire upon husbands and sons mercilessly. Question II had strengthened the pity and sympathy of the girls for a life likely to be their's one day. The focus of attention now passes to its unattractive features. Boys and men do not share in these. Duties become obnoxious to us all when we are left to bear the brunt of them unfairly. The hearty co-operation of all in them, or sympathy shown to the bearers, would remove much of the grievance. Some of these girls find neither co-operation nor sympathy. Naturally, the girl whose lengthy list of daughter's duties is quoted earlier, attacks the indifference of men, and especially boys, to home duties. "When the husbands finish their dinner they read the paper, and then go to work, come home at five o'clock, finish their tea and then go out for two or three hours. But the sons have the best time! When they come from school they get their dinners and then go out and have a game of football until school time. They go to school and arrive home at five o'clock for tea, and if they are asked to hold the baby for a minute their reply is 'What about her, she's a girl, it's a girl's work to mind the baby not a boy's.'" The line of attack varies. Some are didactic. "Sons and husbands should always control their passions and allow themselves to be corrected now and again. Tantalising is a thing to be avoided by all the male sex for a nasty quarrel is often the result." One girl finds men have a good point in that they earn money. No particular virtue or superiority seems to attach to them as a result. The "divine right" of man is generally ignored. Indeed one child robs man of any halo resulting from being the wage earner by pathetically adding, "but the woman has the trouble to stretch it to make ends meet." Some tyrannical arbitrariness lies in the fact that a man chooses his work outside the home in factory and workshop, "whilst a woman has no such choice," in the view of one writer. The girl whose mother had little time for enjoyment is among the most indignant. "A husband's and son's duties are not a bit like a woman's. They go to football matches and they go to the theatre, whilst their wives or mothers have to stay at home. I think the only duty that they perform is going to work. Some men are a little better and they do little bits of things to make the home more comfortable."

In spite of this aggressive spirit it by no means follows that the girls desire to unify men's and women's duties. "Men and boys generally work in ship yards which is a most unsuitable place for women. Some girls work in offices. So that is alright. The majority of women do not mend boots or kettles because it is a man's work." "The duties of daughters and so forth are to see after the home and the money whilst the opposite sex is supposed to go forth as bread winners." Women need assistance in the home, however. Not interference! "Women consult about the meals and eatables and husbands have no say in the matter." "A brother should look after his own duties and have nothing to do with his sisters." A wisely chosen moment for helping is thus described, "Sons should chop firewood, run errands, and sometimes help with the washing of the dishes. Husbands should rise on a Sunday morning to prepare the breakfast, take one of the children out, and remain independent of strong drink." Other proposals for fitting assistance are, "to keep the girls' and women's boots soled and heeled and do odd jobs like mending kettles," "See that all doors are locked and all windows safe and take advice from mothers or anyone older than themselves. Another duty of males is always to let the females have a seat if possible in any kind of vehicle." A clear definition of the respective provinces of wives and husbands is propounded in such statements as the following: "Women do not work in a factory or shipyard but seem to prefer to stay at home and a husband likes his wife to stay at home to have good meals ready for him." "Sons and husbands work in mines and shipyards whilst wives and mothers have enough to do at home looking after the children." "Husbands and sons play rugby or football and the wives and mothers would not think of playing as they have too much work to do." "Husbands and sons play football and they do not scrub the floor or wash dishes, that is the women and girls duties."

Only one of the forty-seven girls moves into a larger sphere of activities. Civic duties are never mentioned. The girl concerned suggests for men the duty of "earning the money and attending the brotherhood," and for women that "if a wife or mother has any great talent outside the home she should use it," though she first requires full attention to home duties. The form of the questions probably accounts for this narrowing of the field of duties to domesticity and its safe preservation. Two less suggestive questions given to a class of thirty-seven girls at the same school just after the November election produced a slightly larger proportion of proposals for an extension of the field. In this second inquiry, two girls include political and civic duties for men and women. Two others include patriotic duties and refer to the recent war. Two include religious duties, one in the following language, "The greatest thing of all is for a man to serve faithfully the great Father who created him. That is the greatest service a man can execute. . . . A woman should serve cheerfully, willingly and obediently the great Father who created her. This is the greatest duty of every woman and she should execute it thoroughly." Another girl suggests generally helpful service outside the home.

The questions in this case asked simply for the duties of men and the duties of women, the family relationship being purposely eliminated. Yet again those relationships predominated in the lists of duties given and the questions raised for discussion.

Some Effects of Prolonged, Unvaried Mental Work.

By F. M. RITCHIE.

THE experiments described here were undertaken with the object of studying mental fatigue. It is unnecessary to point out the interest and importance of this complex phenomenon to teachers.

The mental work performed was that involved in the Kraepelin Multiplication Test, in which four successive figures are multiplied, attention being paid only to unit figures.[1]

The subjects were supplied with sheets of columns of printed figures. These they multiplied for ten hours, resting for ten minutes every two hours.[2]

Each subject did more than one ten-hour experiment, and on the days between the long experiments, aimed at multiplying for at least a quarter-of-an-hour each day in order if possible to eliminate the Practice Factor[3]. In some cases the almost daily practice between experiments extended over months.[4] It ought to be noticed, in this connection, that the Kraepelin operation involves, as its backbone, multiplication which as a child one practises with great frequency both in and out of school, and in which most adults get a considerable amount of practice. The subjects were University graduates with at least one year's psychological training. All had some practice in the Kraepelin multiplication before beginning the series of experiments.

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[1] To readers unfamiliar with this process the following description may be useful. Sheets of figures are used, printed thus :—

2	3	5	3	7	etc.
6	9	4	2	1	etc.
5	8	7	1	6	etc.
7	4	9	6	4	etc.
8	2	8	5	3	etc.
etc.	etc.	etc.	etc.	etc.	

The process of multiplication, beginning with the first column, is :— $2\times 6=12$, reject the 1, carry on with the 2 ; $2\times 5=10$, reject the 1, remember the 0, change the 0 to 1 ; $1\times 7=7$; write 7 alongside the printed 7. Go back to 6 (*i.e.*, the second figure in the first column), $6\times 5=30$, remember 0, change 0 to 1; $1\times 7=7$; $7\times 8=56$. Write 6 beside the printed 8 : Go back to 5, and so on. Thus each written figure is the result of three multiplications and several decisions in choosing and rejecting numbers. For further reference see Valentine Experimental Pyschology and Education, p. 68.

[2] In one Experiment (C8) the subject worked continuously for ten hours.

[3] It is to be feared that many experimenters pay insufficient attention to this complicating factor in experiments.

[4] *e.g.*, in one case from 9th July till 17th December.

Method. The subject was left alone in a quiet familiar room with a supply of pencils and printed sheets of figures. She multiplied as continuously and as quickly as possible. At the end of each quarter-hour she received a signal, marked the point reached, and immediately went on multiplying. The rest intervals were spent in walking, talking, etc. Bovril and biscuits were available.[1]

At the beginning of the 40th quarter-hour in each long experiment the warning " last quarter-hour " was given.

Introspection during the experiment was not encouraged. An insistent impression, however, was indicated briefly, *e.g.*, " V.T." for " Very Tired," " A " for " Amused," etc. These were enlarged upon after the experiment, before the results were examined.

The conditions under which the work was done were kept as constant as possible.

The main experiments fall into three series: A, B and C, performed by Subjects A, B and C respectively. Each series consists of two or more long experiments, with practice quarter-hours on days before, after, and between them.

Each long experiment lasted ten hours and forty minutes, *i.e.*, five work spells of two hours each, alternating with four rest intervals of ten minutes each.

In Series C there are four long experiments, in one of which (Experiment C8) the work was continuous throughout the ten hours. In all cases the subjects were timed every quarter-hour.

Results. Series A.

The subject eagerly anticipated the day of Experiment 1, but on the morning she felt ill and almost postponed the work. Breakfast, however, confirmed a suspicion that her illness was largely if not wholly a disinclination to do something which she expected to find boring and monotonous as well as " fatiguing." Friends had previously tried to dissuade her, suggesting possible disastrous effects. This aroused fears which she dismissed with the promise that she would not finish the experiment if it seemed advisable to give it up. Having some knowledge of psycho-analytical literature she hypothesized the subtle working of a summarily-dismissed-from-consciousness fear, resulting in a feeling of incapacity.

It is interesting that with the same subject another 10 hour experiment had to be postponed because of a mild attack of influenza, and later still another was abandoned altogether because although the subject was willing, her friends vetoed it. As this occurred near the end of a strenuous term, it may be that the illness was a genuine influenza attack. On the other hand there may be truth in the subject's own suggestion of " unconscious disinclination."[2]

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[1] In the second experiment tea and toast were inadvertently substituted.

[2] This is of interest in view of the theory that a phobia may be caused by fear of action, and is a mechanism which enables the subject to avoid some unpleasant activity.

The following Table shows the quantity and quality of output per quarter-hour in Series A. (Experiments 1 and 2 by Subject A.)

TABLE A.

Practice on days before Experiment 1.		Experiment 1.											Practice on days after Experiment 1.	
Calcs. per quarter hour.	Errors.	Qr. hrs.	1st Spell. Calcs.	1st Spell. Errors	2nd Spell. Calcs.	2nd Spell. Errors.	3rd Spell. Calcs.	3rd Spell. Errors.	4th Spell. Calcs.	4th Spell. Errors.	5th Spell. Calcs.	5th Spell. Errors.	Calcs. per quarter hour.	Errors.
67	5	(1)	307	0	287	2	235	0	245	1	291	5	333	2
184	0	(2)	269	3	258	5	299	1	230	5	275	2	363	3
230	2	(3)	281	3	233	5	160	0	247	2	264	0	400	5
217	1	(4)	298	4	319	2	246	1	236	3	178	2	391	3
257	1	(5)	267	3	272	2	233	1	326	3	201	2	429	1
		(6)	183	3	206	3	244	2	248	5	134	1	401	6
		(7)	363	1	231	2	231	0	211	1	144	0	415	1
		(8)	262	1	239	1	253	4	286	2	247	5	410	0
		10 mins. Rest.			10 mins. Rest.		10 mins. Rest.		10 mins. Rest.		10 mins. Rest.			

Av. 279 2 Av. 256 3 Av. 239 1 Av. 254 3 Av. 216 2

Total av. 249 Calcs., 2 Errors per quarter hour.

[*continued on next page.*

TABLE A—*continued.*

Practice on days after Experiment 1 (Ctd).		Experiment 2.											Practice on days after Experiment 2.	
Calcs. per quarter hour.	Errors.	Qr. hrs.	1st Spell. Calcs.	1st Spell. Errors	2nd Spell. Calcs.	2nd Spell. Errors.	3rd Spell. Calcs.	3rd Spell. Errors.	4th Spell. Calcs.	4th Spell. Errors.	5th Spell. Calcs.	5th Spell. Errors.	Calcs. per quarter hour.	Errors.
455	2	(1)	410	1	373	2	349	3	337	4	368	2	433	3
463	3	(2)	396	1	361	1	323	1	318	6	357	1	507	1
429	0	(3)	405	1	346	3	307	2	320	3	329	6		
425	3	(4)	374	2	329	5	318	1	326	5	322	1		
399	2	(5)	369	0	319	0	322	1	332	3	293	6		
		(6)	363	3	326	1	322	2	323	4	330	2		
		(7)	362	0	322	1	320	1	337	6	324	6		
		(8)	361	2	334	1	323	4	332	9	341	1		

Av. 380 1 Av. 340 1 Av. 323 2 Av. 328 5 Av. 333 3

Total av. 340 Calcs., 2 Errors per quarter hour.

The first experiment (A1) was done on a Saturday. On Saturday night the subject slept well, as usual. On Sunday she felt much as usual. On Sunday evening and Monday morning she tended to "lose the thread" in connected thought or conversation. On Monday she was "a little more tired to-day than yesterday, but really hardly at all so," and in the evening she was "Tired. Rather irritable, but keen to work at results and apparently clear-headed."

The second experiment (A2) was done on 26th December. The subject reported "Time very slow in the evening; got very fidgety. Was physically uncomfortable all the time. Crick in neck and pencil couldn't be held properly because of tired fingers—last two hours held it in shut fist all the time nearly. (Wrote a good deal the day before.)"

On the 27th the subject wrote: "Slept badly on nights of 25th and 26th. Dreamt much both nights. On 25th dreamt of degree ceremony and on 26th about work-curves and calculations. Woke at 2 a.m. and again at 4 a.m. and twice more before daylight. Think the idea was to wake every two hours—was it for tea and toast? Chirpy this morning, 27th."

Further selections from the report of the subject :—

Written immediately after Experiment 1.

"Sometimes hand wrote different figure from what I meant."

"Sometimes said figures aloud, especially at beginning of periods and at beginning of quarter-hours—not towards end. When reading a specially difficult passage I often read aloud."

"Little 'dreams' round figures towards the end—in 38th and 39th quarter-hours. Found myself 'dreaming' and writing down a *word* instead of a figure as the result of the dream and the calculation."

Written two days after.

"On Saturday night, Sunday and Monday I tried to remember the 'dreams' and the word which was almost written. 'Huge' was thought of several times and rejected. On Monday morning going along the street I thought of something including the word 'hour.' The certainty suddenly flashed into my mind that this was the word I found as the answer to one calculation. Is this due to a desire for the hour to finish?"

Written after quarter-hour's practice on the day after Experiment 2.

"Got absorbed in the work" and "Very noticeable was a difference
in method: 2 Instead of every step 2....5....10 ; .... once 6....6 : 6 by 7=42,
5 being necessary the units figures seemed to 'shoot out,'
6 *i.e.*, 2 by 5=0 ; 1 by 6=6 ; 6 by 7=2."
7

"Also often the correct answer came* of its own accord before I was conscious of it. This was very noticeable yesterday too; seemed to 'work ahead.'"

Written on the second day after Experiment 2, *after and referring to quarter-hour's practice* (*when highest number ever got was reached*).

"Indifferent. Lazy to-day. Got up at 11 a.m. Worked quite easily. Felt lost in figures as if they were air-cushions. Very comfy!"

Results. Series B. (Experiments 3 and 4 by Subject B.)

Same plan as for Series A, *i.e.*, practice; ten hours' experiment; practice; ten hours' experiment; practice.

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* This means that the hand seemed to begin to write it before it came "to mind."

The following Table shows the quantity and quality of work per quarter-hour :—

TABLE B.

Practice on days before Experiment 3.				Experiment 3.												Practice on days after Experiment 3.	
					1st Spell.		2nd Spell.		3rd Spell.		4th Spell.		5th Spell.				
Calcs. per quarter hour.	Errors.	Calcs. per quarter hour.	Errors.	Qr. hrs.	Calcs.	Errors	Calcs.	Errors.	Calcs.	Errors.	Calcs.	Errors.	Calcs.	Errors.		Calcs. per quarter hour.	Errors.
194	6	317	13	(1)	281	22	377	42	345	42	324	76	320	37		387	30
231	1	343	7	(2)	386	22	319	28	359	58	317	69	299	47		384	29
277	18	350	3	(3)	377	12	415	72	341	65	361	66	327	54			
300	27	328	10	(4)	358	12	355	52	329	49	365	60	296	67			
310	10	375	13	(5)	380	24	354	50	335	59	308	69	334	58			
310	12			(6)	370	33	339	43	353	59	323	67	354	74			
310	15			(7)	378	26	335	62	342	61	300	38	346	88			
299	18			(8)	385	41	337	63	304	47	327	41	319	91			

continued on next page.

TABLE B—*continued.*

Qr. hrs.	Experiment 4.										Practice on days after Experiment 4.	
	1st Spell.		2nd Spell.		3rd Spell.		4th Spell.		5th Spell.			
	Calcs.	Errors	Calcs.	Errors.	Calcs.	Errors.	Calcs.	Errors.	Calcs.	Errors.	Calcs. per quarter hour.	Errors.
(1)	330	6	366	12	372	16	366	20	341	27	400	17
(2)	368	7	338	25	385	22	345	19	340	34	415	9
(3)	385	12	342	18	312	28	353	17	351	50	423	6
(4)	382	7	385	15	365	21	312	27	376	36		
(5)	352	3	351	8	370	32	337	28	356	38		
(6)	368	13	346	16	372	32	368	27	322	39		
(7)	378	17	332	23	358	32	346	28	368	44		
(8)	362	4	386	22	339	22	348	30	393	41		

COMMENTS.

Some comments by the subjects are as follows :—

Subject B after Experiment 3.

"I felt very glad to walk home after experiment. . . . I felt very wide awake when I got home, went to bed about 12.45. I went to sleep the minute I got into bed and slept heavily until 6 o'clock. I dreamed but cannot remember what it was about. I got up about 8.15. On Sunday[1] I did not feel so tired as I thought I should. My 'head' was rather stupid—I could not think of right numbers in test[2]. Felt more tired after Sunday dinner[3]—very dissatisfied and disinclined for work—woke up after that."

Subject B after Experiment 4.

"During fourth spell felt very tired indeed—far more tired than I felt when I did the test before.[4] I thought I should never hold out till the end. During latter half of last spell began to wake up. At the end did not feel at all tired. . . . I felt quite wide awake when I went to bed (11 p.m.). I soon went to sleep and seemed to be dreaming a long time but nothing at all sensible or connected. On Wednesday[5] morning felt very sleepy ; did not want to get up. On Wednesday I felt tired and stiff, did not want to exert myself. I was busy all day, visiting school in morning and writing letters, etc., the rest of the day. In the afternoon and evening had a splitting headache, which went late in the evening. Then felt quite all right and not at all tired. On the whole the time passed more quickly during this test than in the last."

SERIES C. (*a*) EXPERIMENTS 5, 6 AND 7, BY SUBJECT C.

Same plan as before, but three ten-hour experiments instead of two. Practice between experiments 6 and 7 extended from 9th July till 17th December, and was almost daily.

(*b*) EXPERIMENT 8.

Ten hours' multiplication without rest and without refreshment. Timed every quarter-hour.

Results. Series C. Experiments 5, 6, 7 and 8.

(See Chart C.)

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[1] The experiment was done on Saturday.

[2] *i.e.* in practice quarter-hour. In spite of this the subject did 387 calculations in the quarter-hour with 30 errors.

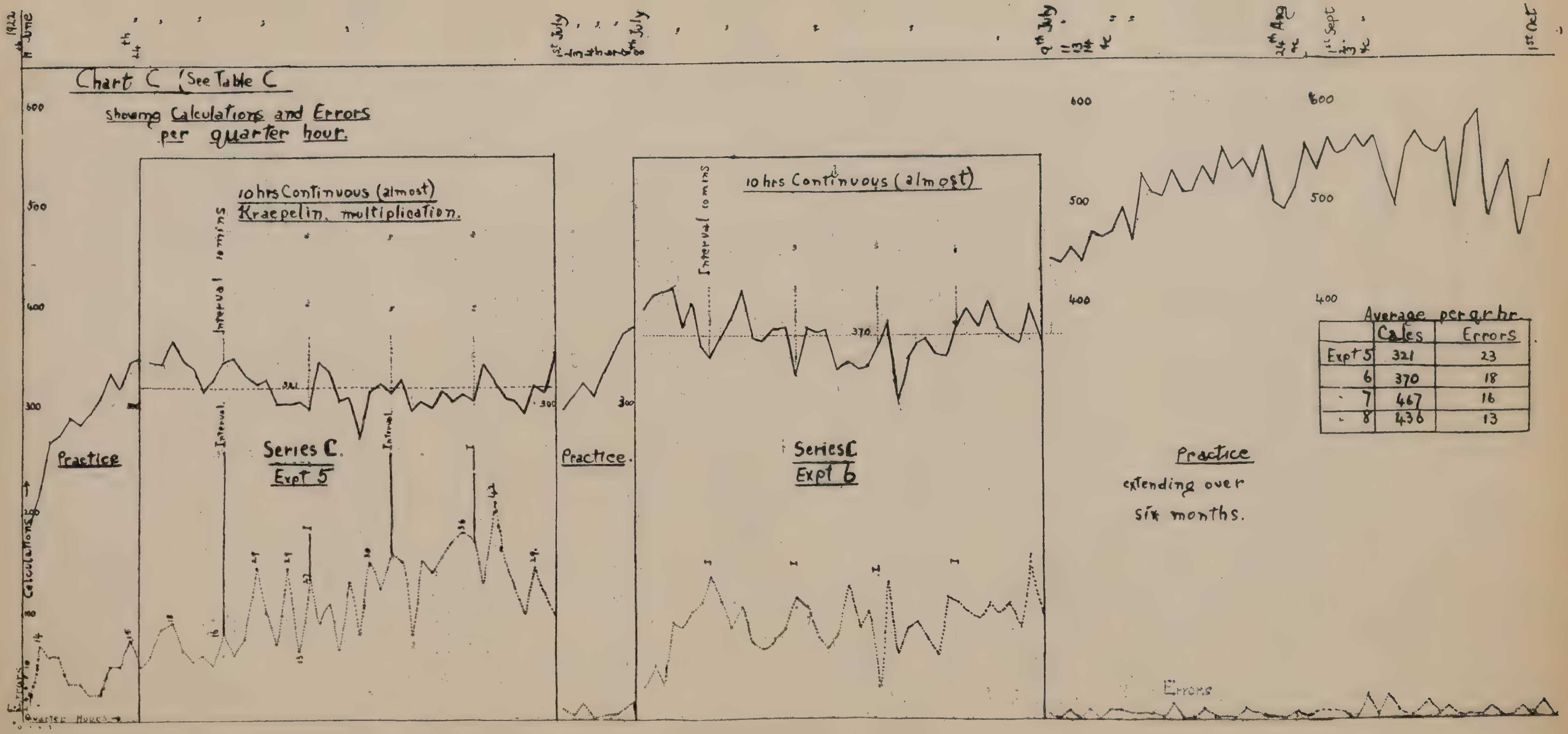
[3] Midday.

[4] The results for this spell are :—

				Calcs	*Errors*
1st quarter-hour	366	20		*per quarter-hour*	
2nd ,,	345	19	Average of whole 10 hrs.	257	23
3rd ,,	353	17			
4th ,,	312	27	Average of spell	347	24.4
5th ,,	337	28			
6th ,,	368	27	Average 1st half of spell	344	21
7th ,,	346	28			
8th ,,	348	30	Average 2nd half of spell	350	28

[5] Experiment done on Tuesday.

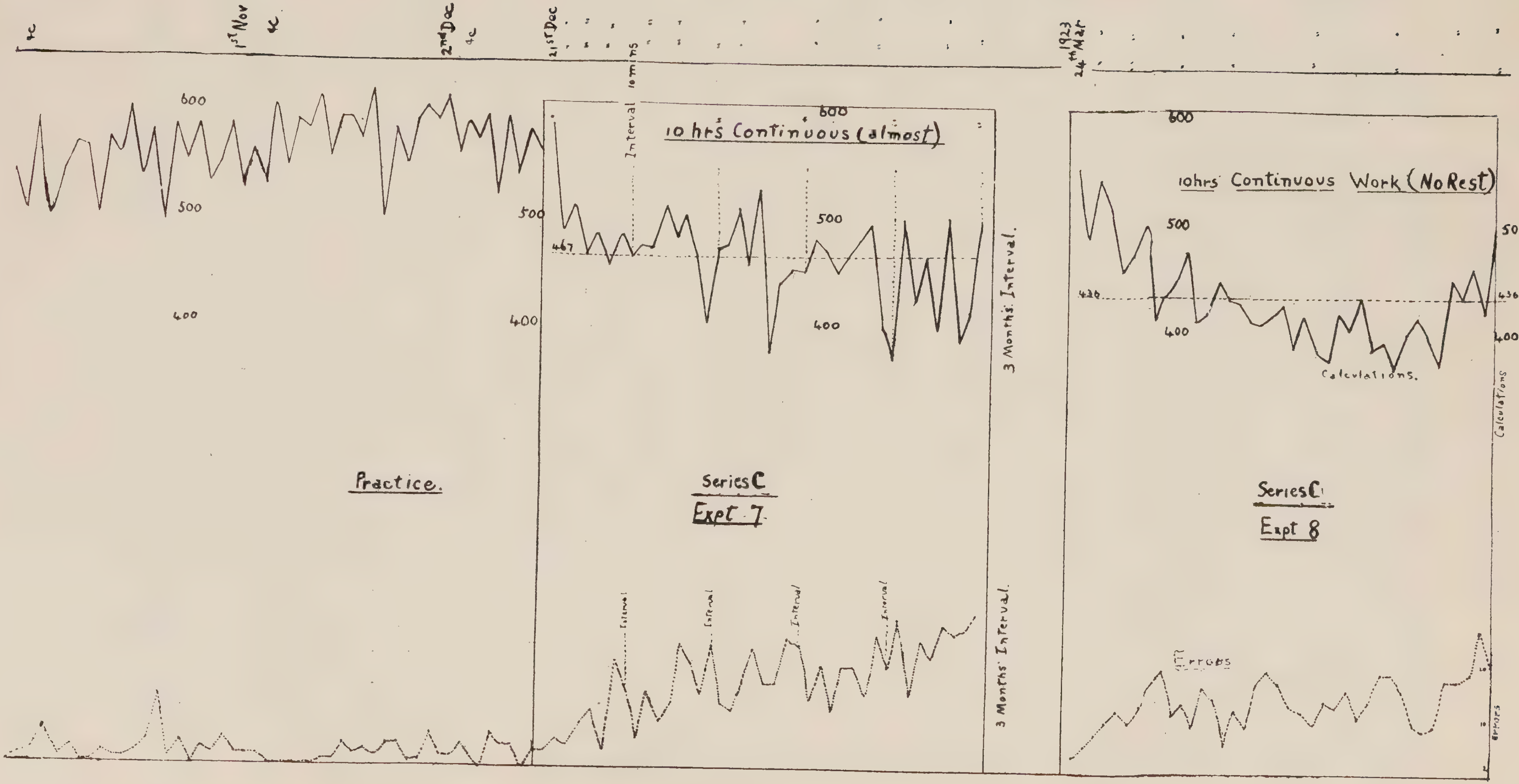
CHART C.



Average per qr hr.

	Calcs	Errors
Expt 5	321	23
6	370	18
7	467	16
8	436	13

CHART C.—*continued.*



SOME COMMENTS OF SUBJECT C.

Subject C, after Experiment 5.

Saturday. "Headache. Felt as though I wanted to go a long walk in the wind. Glad to walk about. Pleased I had kept on for the ten hours. . . . Felt less tired after the tea. Wanted change of mental activity! (Read a little)."

Sunday. "Not very willing to get up. Felt as if I had swotted hard the day before. Tiredness soon passed off. Worked at results in morning and part of afternoon and evening. Felt rather tired Sunday evening. On the whole the ten hours passed very quickly—much quicker than I had thought they would—not so monotonous as I thought it would have been."

Subject C, after Experiment 6.

*Saturday.** "The whole time went more quickly than in previous test. Last four hours did not drag so much. Again found in every two hours first three-quarters went fairly quickly, next three-quarters went rather slowly (inclined to get bored and sleepy), last half-hour went more quickly. After experiment felt rather stupid. Glad to get out in open air. Glad to be able to talk. . . . Felt physically tired—not tired mentally. Felt very faint and shaky.[1] Can't remember going first part of way at all. Everything seemed very far away. Heard myself gabbling on. Had no idea what I was saying. Voice sounded far away. Knew was someone with me, not sure who. Came to myself with a start. Was sure we were in wrong road. Felt awfully faint again. Don't remember anything till got at bottom of hill in E.P. Road. Felt as if I wanted to laugh or weep but not quite sure which. Ached all over. At bottom of E.P. Road car standing with bright lights. Lights seemed to rouse me. Realised had started to rain—rain was beating on my face—felt better then. Went straight to bed—had sal volatile—felt better—very tired but not sleepy. Wide awake in fact. Couldn't get to sleep—read a novel—rather bored with it. Had tea at 12-45 a.m. as still very thirsty. Couldn't get to sleep. Very restless—kept waking up thinking I was doing test and I hadn't reached the number I had reached in last quarter-hour of test."

Sunday. "Tired in morning (physically, rather wobbly)—breakfast in bed—not tired mentally—keen to get at results—worked at them in bed—shown not tired mentally by practice test—did 447 numbers in quarter-hour—only one error. Later in day felt washed out and irritable—was of 'uncertain temper.' Couldn't be bothered to talk to people. Later on in evening tiredness went and worked hard at results of test."

Subject C, after Experiment 7.

1st Spell: "Went fairly quickly."
2nd Spell: "Went very quickly."
3rd Spell: "Felt refreshed at the break. Last hour dragged."
4th Spell: "First hour dragged."
5th Spell: "Refreshed after break. First three-quarters seemed

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* Experiment done on Saturday.

[1] Subject had a similar experience on the previous Monday so thinks not due to experiment.

to go quickly. Wasn't so bored as had been in 7th and 8th spells, in fact quite keen. Yet last-part of hour seemed to go very slowly. Seemed to be working very slowly. Slightest thing put me off. Gramophone playing across the street practically the whole time—last part of time bothered me—got quite annoyed about it. Seemed to be getting tired. Found once train of thought checked was rather hard to get started again. Got pauses of several seconds."

After ten hours. "Glad to move about as was getting decidedly stiff. Felt rather stupid. Headache. Felt more tired than when did test before (not used to working long at a stretch—out of practice).[1] . . . After an hour felt very sleepy, so sleepy that didn't realise what was being said to me—or give intelligent replies. During night kept waking up with start, did this two or three times at almost exact intervals of two hours. Same thing happened some days later—wanted to get up at certain time—all through night kept waking at intervals of two hours. Day after test didn't feel tired. Spent rather busy day shopping. Knew was rather unstable. Suddenly dawned on me that it was probably the after-effects of the test. As when did 10 hours before, seemed to do my best to quarrel with people next day. Felt very annoyed when heard gramophone as the thing had got on my nerves. For days after often thought could hear it when it wasn't playing."

Subject C, after Experiment 8.

"Keen for first two hours or so."

"From 1 p.m. to 4 p.m. lazy and sleepy. Time dragged very much."

"4 p.m. to 6 p.m. Very hard only to think about test. When tried to make special effort soon found myself thinking of other things. Worked very mechanically. Often couldn't write figures down fast enough as arm was getting stiff."

"6 p.m. to 8 p.m. 'Spurt' for first quarter-hour or so. Then time went very slowly. Each quarter-hour seemed almost unending. Arm stiff. Head aching. Getting very stiff. Couldn't get in a comfortable position. Very fidgety."

"Last quarter-hour, *very* long. Found great difficulty in writing. Would have been great advantage last hour or so if could have written with left hand."

"Relieved when test was over. Laughed as very first thing was told it was an absurd thing to do and merely a waste of time and energy. Was very bored with it but not enough to agree that it was a waste of time."

Signs of Fatigue. "Very stiff. Could hardly get up straight. Neck stiff. Eyes tired. Things looked misty after looking at paper for ten hours. Seemed more physically tired than mentally. Signs of fatigue—couldn't talk properly, wanted to use wrong words. Very thirsty but hadn't been very hungry all day—had only felt slightly hungry about lunch time and tea time."

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[1] The subject here refers to an enforced holiday from July until December. She had, however, kept up her quarter-hour practice times.

Next day. "Not very energetic. Slight headache, still rather stiff, arm very stiff, more tired mentally than night before, although had slept heavily. Vague idea of dreaming about being tired, but very hazy about it. Started correcting results, got very annoyed about large number of errors."

TIMER'S COMMENTS.

After Experiment 3.

"Found it very tiring to remember quarter-hours, especially in afternoon periods. Felt I'd rather do the work than keep the time.* Loss of confidence in self as time went on—afraid of forgetting the time. Seemed to lose to a large extent sense of time. Had a walk for over an hour.[1] Felt very tired, too tired to make up my mind to do quarter hour's practice though I wanted to do so."

Next day.

"Irritable, tired, quarrelsome, absent-minded, slept badly. Seemed to find it necessary to wake up every two hours for quarter-hours (echo of experiment ?) though I don't think I was conscious of the past experiment."

Summary.

The results will be discussed more fully in a later article. Some points, however, may be noted here :

1. The most surprising result is the length of time taken to reach the "limit of practice." It may even be doubted whether this limit was ever reached during the experiments.

Subject C practised the Kraepelin multiplication during 237 quarter-hours between 11th June and 21st December, 1922 (*i.e.*, 193 days), and yet it is impossible to say definitely that practice effects had ceased.

This result is very important in view of the tendency of some investigators to give short periods of practice in a test, and then to use the test assuming that the subjects have reached "a fairly advanced stage of practice" or are "almost free from improvement by practice." Obviously, conclusions reached under such an assumption cannot be considered trustworthy. This point will be discussed later.

2. The quality and quantity of output tended to improve greatly in practice times on days soon after the long experiments, *e.g.*, in Series A.

The highest score before Experiment 2 = 463 calculations with 3 errors.
,, ,, ,, during ,, = 410 ,, ,, 1 error.
,, score on the day after ,, = 433 ,, ,, 3 errors.
,, ,, ,, 2nd day after ,, = 507 ,, ,, 1 error.

This improvement seems to have carried over months of non-practice, *e.g.*, from February till September.

It is interesting here to speculate as to the time that would have been required to reach the acquired proficiency if only the short daily practice and no long experiments had been done.

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[1] After the experiment.

[2] The Timer was Subject A, who had already done a ten-hour experiment.

3. A higher average in output was obtained in Experiment 2 than in Experiment 1, although little practice was done between the two experiments.

4. There was a low level in quantity of output in Experiment 7 (Series C) compared with the output in practice times for months before. There was also a lower level almost from the beginning in Experiment 8 than in Experiment 7. This suggests a reservation on the part of the subject. It will be remembered that Experiment 8 is the one in which the work was continuous with no rest periods.

5. There was a gradual improvement both in speed and in accuracy except during the long experiments, *e.g.*, in Series C.

Experiment 5—Average calculations per qr. hour =321 and average errors 23
,, 6 ,, ,, ,, ,, ,, =370 ,, ,, 18
,, 7 ,, ,, ,, ,, ,, =467 ,, ,, 16

(Experiment 8 cannot be compared with these as the conditions of experimentation were different. The results, however, are interesting, average calculations per quarter-hour=436 and average errors 13.)

6. In the long experiments there was a downward tendency in the number of calculations per quarter-hour and a marked upward tendency in the number of errors.

7. Errors were few during practice times, and the number rose during long experiments.

Results indicated by certain comments of the Subjects :—

1. Physical " fatigue " seemed to be more troublesome than mental " fatigue."

2. Keenness remained throughout. Each subject desired to beat her own record both in accuracy and in speed, but especially in speed.

3. There seemed to be an involuntary mechanization of the process involved.

4. There seemed to be a " working ahead " at times.

The Children of England.

A contribution to Social History and to Education. By J. J. Findlay. (Methuen and Co. 7s. 6d. net.)

THE title invites. The first sentence invites—" Some few years ago the present writer stepped on shore from a canoe in Canada : behind him were the woods and rivers, in front was a clearing in the forest." The reader who is attracted by the title and the opening words is never disappointed, for this contribution to Social History and to Education is conceived in no scholastic or academic vein, and although the life of towns and schools claims attention as the book progresses, we are never far in spirit from the forest clearing with its vigorous life and simple problems. The contrast between the nurture afforded by a life spent in first-hand contact with nature and that which a modern town home and school can give is struck at the outset, and is frequently in the writer's thoughts. To force reflection on the " old heredity " in relation to the " new heredity " is his aim. " The old education supplied a scanty schooling for its young people ; but apart from school it afforded a discipline of circumstance and environment widely removed from the resources now provided by elder folk to nourish the spirit and sustain the energies of childhood. . . . Unless we see the present situation in the light of earlier days, our vision is distorted."

Those who are so fortunate as to have been brought up in a country home, where the demands of the school were limited to the four and a half to five hours spent within its walls on five days a week, untroubled by home work and ignorant of " organised games," will surely share Professor Findlay's appreciation of the education which mere living gave them. The visit to the forge, to the carpenter's or cobbler's shop, odd jobs in the garden, kitchen, wood-house, stable or barn, absorbing conversations with ploughmen, gardeners, bellringers and craftsmen and labourers of all kinds, the long unorganised hours of a holiday spent in strenuous labour with heavy tools that culminated in the making of a ford, or bridge, the laying out of a garden or the building of a log hut—and then the long dreams that were dreamt and the endless plays that arose out of these works of one's hands, interrupted only by the unwelcome call to run an errand or to eat an indoor meal—all these things constituted real education for the country child and not the hours in school.

" The town child growing to adult life and breeding *in* the town displays a new mentality, and is cut off by an immense gulf from the rural ancestry out of which we all have sprung. But at once the problem is raised : can this adaptation be successful ? that is to say, can the town type become established as a permanent variation of the race ? The problem is clearly one of immense magnitude and of capital importance for the entire course of civilization. . . . We do not know to what extent urban families establish themselves as successful breeders of their kind for several generations." We only know that the country is being depopulated and that towns are increasing at a portentous rate.

We have then, as Professor Findlay points out, no basis for an educational policy, for even if we could readily conceive a scheme of education ideally adapted for town dwellers, we do not know whether the town type persists through generations. At present we see only that if town children are to obtain as complete a training in eye, hand, and brain as is possible for the country child, that training must be carefully organised. A " discipline of circumstance and environment " is not easily found under urban conditions. While the problem is under solution our sympathies and experience will shape our plans for the upbringing of children, and there is no doubt as to where the sympathies of the writer lie. He sees the best preparation for the " mastery of the art of life," that we at present know, in the opportunities of a country home, the child " about the place with his elders sometimes helping, sometimes hindering, but always learning ; handling tools that may injure him, ill protected from accident, but learning to fend for himself, getting lost in woods and in lanes, and learning the lessons trees and water can teach children who are left free to approach them." In contrast to this life of personal and intimate relationships stands the organised system of schooling under which the town child grows up. He spends his life in a crowd, in school and without. The necessities of life, food and clothes, come to him ready-made from shops, and the tools and materials available for the development of his brain, hand and eye are pathetically meagre. Much also of his knowledge comes to him, like other necessities, ready-made. Not only does the shopman hand over the counter ready-made food and clothes, but the teacher is often forced by lack of apparatus and materials, or by the presence of numbers, to hand over knowledge ready-made and remote from the child's real life of effort and action. Industry has been organised for profit, and the child, like other true artists and craftsmen, has been shut out from his rightful world.

The last chapter gives some notes on reform—Self-Government in the Schools, Learning How to Live, Nursery Schools, Gardens, Open-Air Schools, Workshops, the Land for the Children, Camps rather than School—all these are useful, but " we cannot put back the clock and revert to the primitive simplicities of earlier centuries when there was no system," in fact we cannot put a piece of new cloth on to an old garment. The only sound way to reform education is to reform our social and industrial life. In the meantime we must work at both ends. The function of education is not only to fit young people to master the art of life as their fathers knew it, but to make discoveries themselves. Schools must be not only depositories of tradition, but also workshops of the future. Thus the last note on reform is " The Teacher's Mandate " ; he must not wait for the social and industrial reformer to make a new world.

The notes on reform, however, pass beyond the proper purpose of the book, which is rather to trace the steps by which our modern type of schooling grew up, and the influences which have caused the divorce between formal education and industry. Our present system of schooling viewed in the light of history is " a novelty with no great tradition behind it." The Act of 1870 was the result of a generation of revolt against the intolerable conditions under which children were employed in industry. Enthusiasts for education, as we understand it, were few, but there were many philanthropists who saw that the only way to put an end to the cruel exploitation of child life was to organise a counter system for them over against the industrial system. As long as no system existed for checking the children in schools, no Factory Inspector could be sure that they were not hidden under boards and sacks in the factory and produced again after his departure, in defiance of the law. As a considered scheme for helping children to " master the art of life " our present system of schooling is a still greater novelty.

But since a system of education springs out of the social life of a people, and is conditioned by it, this book is a social history of England written by one " whose mind is attentive to the behaviour of children and young people and who is interested in social changes chiefly from the point of view of their effect on the minds of the young generation." To write a history of the children of England is not possible without writing one of their elders also, so that in a comparatively short book of some two hundred pages the amount of space available for the direct study of children is somewhat disappointingly small. As the preface states, this is not a History of Education in the style usually followed by such works, nor is it a social history of the ordinary kind, and yet it partakes of the nature of both. Its individuality consists in its special reference to the conditions of the younger generation as distinguished from older folks. One could have wished that this special point of view could have been a little further developed, even if the references to the more general topics had been curtailed in consequence. There are tempting glimpses, but they are withdrawn too soon. Of young people in the Reformation age, " If there is any truth at all in the description of adolescence as a time of ' storm and stress ' we cannot ignore the effect on the inner mind of Tudor boys and girls when confronted with appeals to loyalty and religion. The contrast to the attitude taken in earlier times cannot be missed. The mediæval child does not think about religion at all, he just takes it as part of the universal air like sun and clouds." Again on the Puritan prohibition of all careless delights in song and dance, "It is beyond our present purpose to trace the effect of this prohibition upon the children of England during these centuries. . . The Puritan did much for England, but in his righteous revolt against the folly and wickedness of grown men he deprived childhood of its birthright." It is suggested that the Age of Reason was a natural outcome of the choice open to the serious adolescent : " Asked to choose between ' good ' and ' evil ' in the Puritan sense, he chose not religion but philosophy, and if not philosophy then trade, which provided an outlet for the energies of the young on a scale which stamped Great Britain from that day to this with its distinctive character."

These are tempting glimpses, and they suggest the hope that Professor Findlay may yet give us some detailed studies of childhood and youth in England at different periods, now that he has sketched in the general background. No one child of England is mentioned by name in this book, which thus lacks a little the intimate and personal note which he urges the conditions of childhood demand.

The scope of the book does not admit of any attempt to give a complete view of the rise of the different subjects of the curriculum. The arts and crafts and physical education are touched upon, both because the part they can play in the child's development is a decisive one, and also because the 19th century neglected them. Here and there, however, a new aspect is given to old facts. It is pointed out that the enhanced importance of trade in the 17th century introduced tables into schools " tare and tret, filderkins, and firkins, and other such measurements," but to the mediæval child trade was represented by the packman with his tales and his gossip. So near in origin then, and so far in their latest development, are the arithmetic lesson and the tale of adventure. If less time were spent in our schools on arithmetic and more time in reading tales of other lands, if the children heard more of "sky traffickers" and their " corded bales " and less of how to measure and how to weigh them, perhaps England would produce more merchant pioneers though perhaps fewer clerks.

Professor Findlay forces us to think widely. We must leave the classroom and attempt to reconstruct the whole of the child's environment, and ask if it provides him with those varied opportunities which he must have if he is to learn to master the art of life. That we know that we have never learnt that mastery does not excuse our inaction. Some things we do know—better homes, playgrounds, nursery schools, camps, workshops, outdoor schools, provision for adolescents—we know enough to keep us hard at work for a generation, and moreover not only children but adults, and even " authorities " can learn by doing. Meanwhile the children with more space and more air, more sleep and more food, would themselves be learning that mastery which has eluded us.

WINIFRED MERCIER.

The Training of Teachers in England and Wales.

By Lance G. E. Jones. Oxford : University Press 1924. Pp. x+486. Price, 10s. 6d. net.

Mr. Lance Jones' book embodies the results of an enquiry which he began in 1921 for the Garton Foundation. It was thus undertaken and the bulk of the work was completed before the appointment of the Departmental Committee of the Board of Education to enquire into the training of elementary teachers, and it is wider in its scope as it likewise embraces that of secondary teachers. Otherwise a comparison of the book with the questionnaires of the Committee shows a close correspondence in the problems investigated; and this correspondence suggests that we are dealing with a matter in which the problems have been already clearly envisaged, however it may prove to be with regard to the solutions.

There can be little doubt as to the need of such a book. We know of no source from which a foreign enquirer, or for that matter an Englishman not closely connected with education, could obtain a comprehensive survey of our institutions for training teachers, of their working, and of the problems concerning them which are in the air ; indeed, these institutions are so varied that those who are engaged in any one part of the field need such a survey in order to understand the whole of which they form a part. The treatment is lucid, and a wise selection has been made of matter to be included in the text and of statistical and illustrative details to be placed in the appendices.

The introductory historical sketch is essential to an understanding of the descriptive chapters and contains nothing irrelevant. The chapters which are appended on the training of teachers in the United States and France are necessary in view of the widespread belief that our problems can be solved by imitation without the need of breaking new ground. It is impossible to read the chapter on France without realising that the beautifully symmetrical system of French training would need complete reconstruction if it were desired to put an end to the segregation of elementary and secondary schools, which gave way in this country at least a quarter of a century ago. The American problems present the same theme as our own, with many variations, and those different in different States ; but the differences are too great to give scope for much direct imitation. Scottish parallels are much closer ; and in this case Mr. Jones discusses the details of the Scottish solutions immediately after the descriptions of the English system under each main heading and before suggesting changes.

The descriptive chapters deal with the preliminary training of the teacher, with the training of teachers for elementary schools, secondary schools, infants' schools and specialised work, and with the further instruction and training of teachers in service, after which special chapters are given to three of the most difficult problems, the unqualified teacher, the finance of the training system, and the supply of teachers and of training facilities. It is a great merit of the book that it leaves an impression of the actual working of each part of the system as it appears to the writer, not merely of its purpose and aim. A candid expression of opinion on the success or failure of various plans in their actual working is essential if we are to depend on experience and not to be tied down to conjectures in precisely the same way as if we were discussing the trial of these plans for the first time.

In connection with the preliminary training of teachers, for instance, the writer's enquiries have clearly led him to the opinion that, whatever the abstract merits of the student teacher system, they are being rarely achieved in practice. Though he realises the greater difficulty of providing a substitute for the revived pupil teacher system in rural areas, he points out grave defects ; and the real problem to his mind seems to be, when and how can we reach a state of things when the whole supply of teachers will come from secondary school pupils without any special system at all ?

On training colleges, Mr. Jones discusses very frankly the differences of discipline which approximate at the one end to that of the university and at the other to that of the school. He forms an estimate of the general level of the students at entrance which will doubtless be disappointing to many who had hoped that a steady improvement might have been experienced, and does not conceal his opinion that the overcrowding of the curriculum is largely a result of the low initial standard. He recognises a substantial improvement in professional training. One very important point is emphasized that, while the training college curriculum has at last been changed in the direction of specialization, the necessary specialization of the teacher when he goes out to teach has hardly ever been attempted. Again, he points out how long the provision of demonstration schools has been delayed since the official recognition of their desirability.

The question of the extent to which intending teachers should proceed to universities crops up at various points. Mr. Jones is emphatic that it is no gain to a teacher to study in a university unless he takes the full university course. The ultimate ideal at which he would apparently have us aim is a system by which all education over eleven should proceed on secondary lines with more or less specialised teachers, while for children under eleven the general teacher, generally a woman, should be preserved, and he hopes that it will eventually be possible that enough graduates will be forthcoming to fill the ranks of the former class of teachers. The experience of the writer of this review is that in Wales the number of potential graduate teachers has increased since 1918 at a rate which, if continued, would make this feasible. The possibility of recruiting the teaching profession without resort to special grants to intending teachers is carefully discussed, but rather as a problem which may be expected to arise in the future than as one which is ripe for solution. We are less clear as to Mr. Jones's views as to the exact relation which training colleges —for teachers of children over eleven till the supply of graduates is adequate, and for teachers of children under eleven permanently— should occupy with regard to universities than as to other points, though he sums it up by saying, " The Training College would be the extension movement of the Education Department of the University."

The chapters on the unqualified teacher, on finance, and on supply, hang very closely together. We do not know whether the Board of Education would accept Mr. Jones's conclusions. We expect that they will be discussed at the moment more keenly than any part of the book. The apparent over-supply of teachers is usually assigned to the failure of continuation schools to realise themselves. Mr. Jones produces a large amount of statistical information to prove that, without any continuation schools and without any discharge of existing unqualified teachers, the present output is inadequate to meet the wastage of a progressive diminution of the size of classes and of the numbers of unqualified teachers employed had been continued on the lines of the normal policy which the Board was till recently pursuing. Here it is well that the problem should be put from the educational standpoint, so that if we fall short of a proper system for financial reasons, it should be as clearly recognised that we are falling short as it would be in any other branch of the public service. The writer takes a firm stand on the position that the untrained or uncertificated teacher is an anomaly, and the only form in which he would ultimately recognise the unqualified teacher is in the case of the person who is waiting to enter a college. The main problem to Mr. Jones's eyes is not providing places for teachers but enough teachers to fill the places that ought to be!

Space forbids notice of the closely reasoned account of the problems of secondary training, especially that of the need of distributing the students for the practical part of the work while they follow the theoretical part in a university.

Even if the report of the Departmental Committee be found to cover the same ground, we cannot help feeling that Mr. Jones's work will not be superseded. The researches of a single enquirer devoting himself wholly to the task produce a unity of conception and a view of the ultimate as well as the proximate goals which it would hardly be fair to expect of a body which is responsible for making immediate reforms; and a private individual can speak with less reserve. Should his conclusions prove to be different from those of the Committee, a valuable basis of discussion will be provided; while, if they are generally in accord, it will tend to create a confidence in policy of the Committee which will be needed in view of the widespread feeling that the educational policy of the country has for two years been tending in a reactionary direction for which there has been no parallel since the days of Robert Lowe.

R. L. ARCHER.

An Introduction to the Psychology of Religion.

By R. H. Thouless. (Cambridge Press. 1923. pp. 286. 7s. 6d. net.)

All who have at heart the reform of religious teaching, whether to the young, the adult, or the old, in this country will profit by and welcome this highly serviceable though unpretentious book. Although the lectures of which it is the substance were originally delivered to ordination candidates, teachers, and students of education as well as parents, will find in it much useful material carefully arranged, and despite the regrettable absence of a bibliography, it is plentifully furnished with book references throughout. We wish indeed that more use had been made of, and more applications derived from Ward's "Psychological Principles," particularly in the treatment of belief and faith and in dealing with the experimental factor in experience, and above all in religious experience. It is regrettable, too, that Mr. Thouless has not quarried in the rich mine of Sir Charles Eliot's three great volumes on "Hinduism and Buddhism," especially in view of the increasing influence of those religions upon Christian religious experience. Had Mr. Thouless utilised Eliot's work, he would, we think, have entirely rewritten his opening chapter entitled, "The Psychology of Religion," have attached less importance to Leuba's statistical summaries of various definitions of religion, and have used the term *feeling*, whether in the singular or plural, with greater caution and serviceability. Some confusion must we fear arise from the way in which terms are used in this opening chapter: "religious experience" is described as the *sense* of the presence of God, as the *feeling* of peace after prayer, as the emotional *undercurrent* of religious life, all this on page 5; while on page 10 we are told that our conclusions must be justified by an appeal to experience (? to the above *sense, feeling, undercurrent* ?), and on page 31 an experience being "purely individual and incommunicable" seems to be altogether beyond the reach of students attempting in common to justify conclusions having the quality of general propositions. In like manner the term "explanation" is used in a highly dubious fashion on page 9. An elaborate analysis of the elements in "that complex mental product we call religion" is set forth, but not a word is said about von Hügel's famous and masterly analysis in his "Mystical Element of Religion." It is indeed extraordinary that the greater part of the chapter on the traditional element in religious belief is devoted to a discussion of suggestion and the specific examples from religion are drawn from certain practices in Salvation Army services and from "a little book called 'Stones of Grace.'" Surely, if Mr. Thouless had wanted an example from a little book, even if he thought it a dreadful example, as he does the above, the "Spiritual Exercises" of St. Ignatius Loyola would have been more impressive, better known, and more comprehensive? We cannot think, indeed, that Mr. Thouless' illustrations are at all happily chosen, especially when he elects to put before us as his example of a modern mystic Flournoy's highly pathological case of "Mlle. Vé." Here again von Hügel would have been a better guide than Flournoy, and Wesley's preachers, studied in some important articles by Dr. Caldecott, would have furnished him with more significant illustrations: but Wesley lived before the days of Freud and Jung. It is gratifying that Mr. Thouless recognises the importance of the æsthetic factor in religion and religious experience, but it is astonishing to be told that it is absent from the Gospels and from the (large and undefined) ascetic school of Christianity. S. Teresa and S. John of the Cross are austerely ascetic, but are they not poets, too? S. Francis of Assisi is God's troubadour but lacks he the austerity of life? Are there no lilies, no odours, no loveliness in the Child, the manger and the Mother of the Gospel story? The beneficence of Nature, integral to the æsthetic aspect of religion, includes, Mr. Thouless tells us, "gentle warmth, seasonable rain, domestic animals." Are these absent from the Gospels? And is the æsthetic argument quite so weak as he suggests? Dr. Caldecott has always himself held the æsthetic argument in high esteem. That it can bear "the weight of our deepest convictions" may be seen in Sir Cecil Spring Rice's beautiful "Sonnets from the Persian," published shortly before his death. We wish that Mr. Thouless had more searchingly and more sympathetically scrutinised this æsthetic factor, for (the reviewer ventures to believe) the time is not far distant when psychology will recognise the primacy of the æsthetic in both general and religious experience, and Rossetti's claims therefor will be conceded. One of the simplest and most beautiful of the meeting-houses of the Society of Friends has, carven over its great fire-place, lines from George Herbert chosen surely because even in that Society beauty is irresistible: "You must sit down, says Love, and taste my meat, so, I did sit and eat." Chapter V, on the affective element in religious belief, is another example of Mr. Thouless' predilection for the pathological. James' "Varieties" are themselves more pathological than normal, and it does not seem to us greatly to advance the psychology of normal religious experience to dwell at length upon the anæsthetic revelation, the effects of hashish, of pre-epileptic exaltation and the like. We regret, too, that in dealing with the rational factor Mr. Thouless has not more strongly emphasized its importance in the highly critical and challenging mind of adolescence. We entirely disagree with his criticism of the ontological argument, having found that it makes a real and powerful appeal to school pupils of the age of fourteen, as well as to W.E.A. classes, and to undergraduates. And is Mr. Thouless quite safe in saying that the ontological argument has had "extraordinarily small" influence on religious thought? What is it that compels metaphysicians, logicians, theologians and psychologists century after century to settle (or unsettle) their account with it?

Fourteen pages deal with "the unconscious," but only a very little part of this chapter is really devoted to the psychology of religion, and the principal illustration is from Streeter's account of the Sadhu. Juliana of Norwich, Gerlac Petersen, the "Cloud of Unknowing," and the "Prelude" would have furnished other and perhaps better examples.

An important subject is dealt with in Chapter X, and it is in this chapter above all that we wish Mr. Thouless had referred to Sir Charles Eliot's book. For there he would have found not merely a survey of sex and phallic factors in religious experience but also a reasoned connection of these with both the psychology and philosophy of religion. We hope that in a future edition Mr. Thouless will assist his readers still more by noting and not ignoring Eliot's work, which was published in 1921. The treatment of worship and prayer will repay careful study, even if the reader, like the reviewer, violently disagrees with it !* Pillsbury's book on " Attention " is valuable in any discussion of prayer, which is largely attention controlled and centred upon God. We regret that Mr. Thouless inclines to regard conversion as a catastrophic occurrence ; " outbreak " is the word he uses—is it not true that besides the once-born, twice-born, oft-born, and not-born there are the continuously-born, the great majority ?

The difficulties in Mr. Thouless' book are inevitable, the subject is too vast, it requires either a work on the scale of von Hügel's or a series of monographs. But we do hope that in future editions some additional and happier examples of mystical experience than " Mlle. Vé " will be given : a good book will be made nobler, finer, and more inspiring if its illustrations are so.

ALBERT A. COCK.

RESEARCH IN EDUCATION.

Change of Address.

The address of the Honorary Secretary of the Committee for Research in Education of the British Psychological Society is now : Mrs. Susan Isaacs, M.A., 53, Hunter Street, London, W.C.1.

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*See the *Church Quarterly Review*, April, 1922, and January, 1924.

Book Reviews.

The Daydream, A Study in Development : by George H. Green.
(University of London Press. 6s. net. pp. 303.)

The author sets out to consider the daydreams of children " with a view of throwing light upon the nature of the development of the self, more particularly in the years preceding adolescence, and of suggesting the possible importance of the evidence of such daydreams for educational theory in general."

He finds that in many cases at approximately the same ages (*e.g.*, about 10 and 14 years) the theme of the daydream changes abruptly. The changes, he suggests, may be due to the emergence of an instinct which for a time determines the direction of interests. He notices certain age-growth curves which show distinct discontinuation about these ages. He draws attention to the fact that the drawings of many children between 11 and 13 years are inferior to those of younger children, whilst at 15 years there seems to be an " artistic revival." He sees, in the daydream, a preparation for æsthetic and for religious experience and advises scope for it to develop " to the high level it has reached in the efforts of the masters of art and of letters."

In view of the professed aim, it is unfortunate that so few actual daydreams of real children are given. Unfortunate, too, is the use of such terms as "introvert," " complex," " normal sex complex," with insufficient explanation. Also, certain conclusions seem unjustifiable on the evidence given, *e.g.*, in Chapter IX, which deals with the daydream and the child's religion, and is perhaps the least convincing in the book, a child refuses to wear an accustomed red jersey to school—says it is " red like fire." From the data given one might suppose the explanation to be that the colour reminds the child of hell. The author, however, suggests that the " all or none " principle is at work, and that the child confuses likeness and identity —the jersey is like fire in all respects, so the child runs away from the fire.

The book will be of benefit to psychology and to education in so far as it proves a stimulus for further study of the daydream. The author admits that he is prepared to find his conclusions challenged, even disproved. The book cannot be read as a scientific exposition, but it presents many interesting facts and suggestions, some new, more old, and makes delightful " week-end " reading. Certain printers' errors, *e.g.*, " Persse " for " Perse " seem to have escaped observation.

F.M.R.

A Modern College and a Modern School : by Abraham Flexner.
(Doubleday, Page and Co., Garden City, New York. 1923. $1.00.)

Dissatisfied with the general scheme of American education of to-day, and in particular with the aimlessness of so many American College courses, and with the formalism of the courses in many American schools, Dr. Flexner suggests in this book a scheme for the reform of both. With regard to college education, Dr. Flexner takes a hint from a successful plan tried first by the John Hopkins Medical School, which demanded that the college course of its prospective students should be a preparation for their medical studies at this University. Dr. Flexner suggests that this plan of a college course designed with a view to the student's future career might equally well be tried with regard to students who will enter other professions, law, engineering, or teaching, or who will go into business. Thus, for example, " in the very process of acquiring mastery of his subject in college, the future instructor should be studying educational problems, experience and technique." In this particular case, we venture to disagree. While it may be legitimate to allow a future profession to influence up to a point one's choice of subjects while at college, the actual technique of the teacher's profession is, we believe, better studied after the Degree course rather than along with it, so introducing a diversion of attention and clash of interests. This particular problem does not seem to us to be on all fours with that of medicine.

In the section A Modern School, Dr. Flexner pleads for an education less formal and bookish, and more in touch with modern life.

E.S.

Child Training through Occupation : by Lucy Bone and Marie E. Lane.
(Methuen. pp. xi+140. 3s. 6d.)

The above title scarcely fits a book which is devoted largely to stating the case for individual methods in teaching little children. The teaching of reading and number by individual methods certainly necessitates a large amount of occupation, but the teaching of these subjects is by no means the whole of child training, nor do the activities involved by any means cover the range of possible occupation. The treatment of actual handwork is very inadequate.

Again, " The Psychology of Individual Occupation " is, one feels, too pretentious a title for a chapter devoted to a very popular statement of the pros and cons of individual work. Such a chapter heading demands a more thorough-going treatment and accurate psychology.

The book is likely to be welcomed by a limited class of reader—that mentioned by the authors in the preface—teachers from remote country schools who are athirst for information as to the why and how of the new individual work. To the more fortunate town teacher and to the student in training the book has little to offer.

Some good advice is given on the teaching of number and reading in the early stages, and the suggestions for the making of graded apparatus are particularly useful. Very sound, also, is the advice on the keeping of records.

Specimen time-tables have always their dangers, and in this case one would wish that the authors had used broader terms than " recitation " and " singing " respectively to signify lessons which should include far more than the mere activities suggested. The use of the word " printing " to signify a particular type of writing is also to be deprecated.

The English of the book is not always beyond reproach, and in a few cases instructions for making apparatus are far from clear. L.E.S.

The Older Universities of England : by Albert Mansbridge, M.A., LL.D.
(Longmans. pp. xxiv and 296. 7s. 6d. net.)

The reader of English educational history will always find a field of fascinating study in the rise and development of the older Universities, especially as the effects of their teaching are more and more felt in the national life. Oxford and Cambridge can never be just local possessions ; they belong to the world and to all classes of people. Dr. Mansbridge makes one feel this as one reads the enormous amount of information he has brought within the covers of a portable book and ornamented with a wealth of argued statement showing how important are the parts played by these Universities. Their origins, their vicissitudes, their failures and their triumphs are clearly set forth. He has sorted out and aligned their highly varied activities in such a way as to make a valuable contribution to the literature of educational history ; information which was before the possession of the few is now readily available for all. Indeed, the author shows his genius to the fullest advantage in his treatment of the complicated story, but the greatest appeal in the work is made as he describes the steps by which the Universities are adapting themselves to the needs of a democratic age and promise to set the truest ideals before the eyes of their children who are so rapidly becoming representative of all grades of the social community. A.P.B.

Towards Freedom : by M. O'Brien Harris, D.Sc.
(University of London Press. pp. xi and 213. 5s. net.)

The mode of organising schools upon some plan which will enable individual efforts to be developed to better advantage than by a pure class-room scheme has become familiarised to most teachers by descriptions of the Dalton Plan. We have now before us a plan based upon similar principles but developed through a different school method of organising, namely, a House System at right angles, as it were, to the Form System with which we are perhaps best acquainted. The promotion of habits of auto-education interests teachers to a high degree nowadays, and it is useful to have Dr. O'Brien Harris' method of treating the problem before us, since she appears to meet it successfully by the use of the community spirit of the comparatively new " House " instead of the traditional " Form."

Education in Indiana : Report of the Indiana Education Commission.
(pp. x+304. General Education Board, New York.)

Evidently all is not well with Education in Indiana, and as the authorities are well aware of this they are projecting reforms which will be realised about 1931. The proposals entail scrapping many ungraded schools and providing in their places a much more efficient system of " graded " schools for primary education, with " Junior High Schools " in close relation and " Senior High Schools " distributed so as to serve conveniently the younger scholars for whom travelling is a matter of difficulty, or the older pupils better able to overcome difficulties of transport. The system is even now in the transitional stage from that originally established upon old traditions to the ideal set by the Commission, but the complete realisation of reform will no doubt be studied with interest and have its lessons, maybe its warnings also, for English educational administration.

The Commissioners propose many readjustments in the methods and means of training and paying teachers and other members of the education service.

Perhaps next to the reconstruction of the school system the most interesting project is that of altering the mode of levying taxes for education throughout the State.

In view of the hopes held by many in this country regarding the co-ordination of secondary with primary education, the redistribution of taxation and the training and scheme of emoluments for teachers, what happens during the next few years in Indiana ought to prove interesting, especially to administrators. The diagrams and statistics included in the Report are instructive, and the ideals of the Commissioners are set forth quite clearly.

A.P.B.

Easy Passages for Translation into Latin Prose : selected by Prof. H. E. Butler and Mr. L. Solomon. (University of London Press. 1s. 6d.)

A handy book of well-varied selections suitable for sixth forms and less advanced University work.

H.B.L.

Selections of French Prose and Verse : by Alfred T. Baker.
(Methuen. pp. viii+258. 5s.)

The author states that the purpose of this book is to help those who are taking Advanced Courses in Modern Studies " to an understanding of the Romantic Movement, or rather to one side of the movement, since no account is here taken of the more spectacular side—the drama." It will undoubtedly be very useful as supplying passages for intensive study, but we trust that pupils will at the same time be encouraged to have recourse to the complete work from which passages are taken and to obtain a first-hand knowledge of more of the author's thought than can be found in selections. Too many pupils leave school nowadays with the habit of dealing only with literary " snippets " firmly engendered.

Although the drama has perforce been excluded from a book of this compass, we feel that some passages of " La Préface de Cromwell " would have helped to an understanding of Romantic ideas upon literature in general, and that the book would also have gained by the inclusion of some of Hugo's descriptive prose, even at the expense of some of the extracts from Lamartine's works, a full appreciation of which is rarely to be found in pupils of school age. We also feel that although it is necessary to show in Rousseau the emotional ancestor of the Romantics, this could have been done by a passage less full of unhealthy passion than that taken from the " Nouvelle Héloise." Apart from this the selections have been admirably made and afford a knowledge of the best work of the period. The introduction giving the historical background is excellent, as also are the notes upon the selected passages.

K.E.C.

The Psychology of Education : by David Kennedy-Fraser, M.A., B.Sc.
(Methuen. pp. 201. 6s. 6d. net.)

A successful attempt to focus the principles and the results of recent research upon some of the problems of education. The reader's attention is held throughout and the easy style in which the matter is presented, free from unnecessary technicalities, makes the book one not only of use to the teacher but also to those who want to gain a general view of modern psychological tendencies in education. The author has been happy in the way in which he has presented his subject.

The Elements of Scientific Psychology : by Prof. Knight Dunlap.
(London : Henry Kimpton. 18s. net.)

It is with something approaching trepidation that one opens this imposing volume, bearing a title which is not entirely persuasive. But one's misgivings are soon allayed, for the author has attempted, what many have recently tried to do, to write a book "for the specific purpose of introducing the student to the elements of psychology." For him Scientific Psychology is "a science of the conscious responses of the organism, whose subject matter is the world of real objects and real activities, and whose methods are those of all science." The author hopes that the book will also "be of assistance to men of various professions who wish to become conversant with the foundations of modern psychology." Incidentally he pleads for the greater rigidity of definition of psychological terms. In pursuance of the aims of the book the author devotes rather more than a quarter of the book to physiological psychology, and then roams over a wide field, including "Thought and Thought Content," "Instinct and Habit," "The Development of Perception," "Space Perception," "The Thinking Process," and closes with a chapter on "Mental Deficiency and Mental Disease."

These topics are discussed fully and clearly, and the results of recent experimental investigations are given wherever possible. A useful bibliography is included.

A later revision of the book will necessitate the re-writing of a few passages *e.g.*, pp. 114, 192), and a few corrections will be necessary (*e.g.*, p. 127).

The book affords interesting and suggestive reading for one who already has some knowledge of the subject, but one may doubt if the author's aim has been achieved. The volume is excellently printed and published. E.C.C.

Rural Education : A. W. Ashby and P. G. Byles.
(Clarendon Press. pp. 227. 2s. 6d. net.)

It is time more attention should be given to the problems of education in the rural areas of England, and this little book, which treats so pleasingly with the problems that are presented by the sparsely populated county of Oxford, is a valuable contribution to educational literature. The joint authors have made a very complete review of the situation and of the factors bearing on the work of country schools; they have been critical but sympathetic in their treatment, and although lack of money may hold up the progress of reforms those who would bring them about will find in this book plenty of material to use for the purpose of preparing the way for rapid action when funds are available.

The Teaching of Reading : Harry Grove Wheat.
(Ginn and Co. pp. 346. 7s. 6d. net.)

This book presents useful accounts of recent investigations into the psychology of reading, the principles, aims, and results of instruction in reading for pupils at different stages, and of a number of exercises that have proved successful for various purposes. Students in training will find many practical suggestions and should be led to realise that the important thing is not the device but the knowledge of when to use it, for what purpose, and for how long. The aim of the author is realised in so far as teachers and students using the book are led to form their own definite plans in accordance with the fundamental principle that reading is for meaning.

Carbon Compounds : by Frank E. Weston. Revised by F. R. Weston. 4th Edition. (Longmans, Green and Co. 1923. 4s. 6d.)

This well-known book gives "A Scheme for the Detection of the More Common Classes of Carbon Compounds." It has been revised and some additions have been made. This (the fourth) edition of the book should be of value to students, more particularly to those for whom it is specifically intended. E.C.C.

A Junior Course of English, Part III : J. W. Marriott.
(G. G. Harrap and Co., Ltd. 1s. 6d.)

This is a continuation of the Junior Course and outlines work for pupils twelve to thirteen years old in reading, talking, and writing. It is suggestive and practicable, though it would need to be supplemented by material for reading, as an intelligent boy of twelve devoured the matter for reading in less than two hours.

The New Examiner : by P. B. Ballard, M.A., D.Litt.

(Hodder and Stoughton. pp. 269. 6s. net.)

In this book Dr. Ballard contends for a new method in examining, the central idea of which is derived from methods used in mental tests. Dr. Ballard's scheme, however, goes far beyond this. It aims especially at eliminating the influence of chance. One main idea is to have many short questions instead of a few involving long answers. His two-hour test in algebra, for example, includes a hundred items. It is, as Dr. Ballard argues, scarcely possible to cram for such a test, as that would involve the mastery of all the main principles of the subject.

Perhaps an even greater advantage of his method is the far greater facility in marking. With the vast extension of examinations which is involved in entrance examinations for secondary schools, and in the huge numbers entering for school-leaving certificates, the varying standards of different examiners have become a serious difficulty, not entirely to be eliminated by the correlating examiner, for his standard, too, will tend to vary.

Dr. Ballard gives some interesting examples of the enormous variations in examiners' standards, especially in dealing with the essay. It is upon the author's severe opposition to the essay as an examination test that criticism of this book will probably centre. Dr. Ballard puts forth some very trenchant arguments and interesting evidence as to the unreliability of the essay as a means of estimating the candidate, but his view is difficult to reconcile with Dr. Cyril Burt's conclusion that reasoned composition was the best scholastic test of intelligence.

Dr. Ballard's method of many simple questions usually involves little writing work on the part of the pupil. Questions in history or geography, for example, may consist of brief statements which the pupil has simply to declare true or false. A great amount of ground can thus be covered as in the rapid tests which teachers have long used in dealing with history or geography home-work preparation.

It may be thought that this would encourage attention merely to bald facts and that the more philosophical aspects of history and the scientific aspects of geography would be neglected. But this need not be so, as Dr. Ballard's examples show ; and further, that vicious concentration on exceptions and out-of-the-way facts is lessened by the increase in the amount of the material covered by the questions.

The book contains sample examination papers on all the usual school subjects. It is to be hoped that it will be widely studied, not only by teachers but by examiners and education officials, by whom it will be found full of stimulus and valuable suggestion. It is scarcely necessary to add, at least to those who know Dr. Ballard's other writings, that it is written in a clear and lively manner.

C.W.V.

Citizenship and the School : by P. B. Showan.

(Cambridge University Press. pp. 180. 7s. 6d. net.)

Mr. Showan discusses in a useful and suggestive manner the problems indicated by the title of his book. He agrees with the authors of the recent "Report on the Teaching of History" that the method of instruction most likely to find favour in this country is the use of existing courses in history and geography as a vehicle of civic knowledge. A great part of his book is taken up with a series of interesting proposals for the adaptation of lessons in history and geography to this end. In some cases he sets a difficult task before his readers, as when he proposes that children in a first form should be asked to discuss the principles of Athenian democracy, or to examine the growth of feudal institutions before the Norman Conquest. On the other hand, many parts of the work are admirably done. There is, for example, a very interesting account of local courts—of the hundred, the manor, and pie-powder—in North Lancashire, which could be copied, with excellent results, by teachers in other parts of the country.

Mr. Showan rightly holds that social history and economics are quite as much a part of civic training as the study of government. But his book confirms our opinion that the whole ground cannot be covered by a mere readjustment of courses in other subjects. A full civic training, including economics and politics, not merely descriptive, but reasoned and critical as well, demands special treatment which can hardly be given at all in a primary school and finds its most appropriate place in the last year or two of a secondary education. Nevertheless the partial training which involves no disturbance of general form subjects is much better then nothing, and to the very large number of those whose civic teaching is thus limited Mr. Showan's book will provide invaluable help.

C.G.

Children's Stories and How to Tell Them: W. A. Bone. (Christophers. 4s. 6d. net.)

So much has already been written on children's stories and the technique of story-telling that one naturally expects to find in any recently published book on this theme something either new or original. Miss Bone, in "Children's Stories and How to Tell Them," does not adequately fulfil these expectations, and her appeal can only be to a limited public. The young teacher or parent, ignorant of the educational possibilities of story-telling, may find the book helpful and suggestive, but to the thoughtful teacher of young children who already knows something about mythology and has made herself tolerably acquainted with the existing literature on children's stories, Miss Bone has little that is new to offer.

In the Introduction, we are asked · "In retelling and reading the stories common to us, from the Slayers of Dragons to the tales of King Arthur and Roland, or the mythologies of the Norsemen and Greeks, how many of us realise that we are introducing childhood to childhood—the childhood of our own day to the childhood of the race?" Surely such a realisation is not so rare as the question seems to imply, and surely teachers for many years now have found in this realisation one of their chief reasons for presenting to their classes traditional and mythological material!

This aspect of the story is developed in the first two chapters, the main purpose of which is to emphasize particularly the fact that traditional stories are a reflection of racial thought. The place of the story in the life of the child, and the technique of the story teller are next considered. There follows a chapter dealing with verse, plays, and music, and one in which actual stories are given. A bibliography, which is extremely interesting and valuable and should prove helpful to all teachers, completes the book.

One finds it easy to sympathise whole-heartedly with Miss Bone in her insistence that a wide knowledge on the part of the story-teller is necessary and that stories told should have a distinct literary quality Too often the story-teller thinks of nothing but conveying facts quite forgetful that each story demands its own literary choice of word, phrase, and image. The chapter on Picture-making will be found helpful in this connection.

It is, however, a pity that Miss Bone, while pleading so bravely for this literary excellence on the part of the story teller, should suffer herself to write sentences the construction of which is not always beyond reproach. For example, the disjointed nature of the following sentence occurring on page 1 is at once apparent: "Words were in their infancy, the need for greater definiteness would be felt first in the story; words have less variety than circumstances, and they found suitable expression in rhythm or monotonous sing-song.

This is unfortunately not the only example of a faulty style, which naturally detracts much from the value of the book.

F. M. BUCHANAN.

A History of English Literature. Edited by John Buchan, with an Introduction by Sir Henry Newbolt. (Nelson and Sons, Ltd. pp. 675 and xx. 10s.)

This History should prove of great value to those who desire knowledge of writers and movements in order that the æsthetic and emotional appeal of literature may be heightened. We believe that many who turn to it in order to satisfy curiosity as to the personality of a writer who is little more than a name to them will be led to read more of it and then more of the author's original works.

It is an attempt to present a history of English literature which should be more than a mere summary and less than the elaborate compendium, and should help both the professed student and the general reader to realise that English literature is a living thing intimately connected with English life, especially as the chapters or sections on various writers or topics have been written by authorities in their respective spheres.

Sir Henry Newbolt pertinently emphasizes in his Introduction, which should be read carefully by every student of literature, that "those who make use of a history of literature should never cease to remember that its intention is not to involve them in the turmoil of transitory life but to bring them to that place apart . . . . the asphodel fields where we are listening to our contemporaries Homer, Dante, Milton, Æschylus, Shakespeare, Meredith, Hardy, and the rest."

If the reader approaches the book in this spirit he will find much to help him and less than is usual in histories of literature to hinder him. The bibliographies and the illustrations are valuable additions. It is, however, to be hoped that the publishers will find a way of strengthening the binding.

A.E.C.

The Americas (The " Explorer " Geographies) : by James Bruce, B.A., B.Sc. (G. Bell and Sons, Ltd. 1922. Price 3s.)

If this book, as stated in the preface, is intended for older children, the elementary chapters on the reading of orographical and climatic maps should have been omitted. Maps showing the annual rainfall of large areas are misleading, and in the case of North and South America should have been omitted, especially as the writer wisely includes seasonal maps.

Summer and winter isotherms could with advantage have been shown in two maps side by side.

Several of the double paged illustrations are good, but it is a pity that the illustrations and letterpress on the back of double pages were not larger.

Several inaccurate statements occur. The range of latitude of North America is 85° N. to 12½° N., as the continent includes Greenland and the Arctic archipelago on the North and structurally ends at the Isthmus of Tehuantepic 12° N. in the South, giving a range of 67½°, not 60° as stated.

Similarly South America extends from 12½° N. to 55° S.

Some reference should have been made to the fact that Central America and the West Indies are structurally unlike both North and South America, otherwise their inclusion with South America (on racial and political grounds) under the term " Latin America " is likely to be most misleading.

It is also a mistake to attribute the backward development of South America entirely to climatic reasons. In dealing with the economic development of Centralf and South America too little importance was attached to the varying degree o influence exercised by Spain and Portugal.

Helpful questions on the subject matter are found at the end of the book, and a bibliography.

On the whole the writer has tried to cover too much ground within the compass of 192 small pages of large print.

An Essay towards the Theory of Art : by Lascelles Abercrombie. (Martin Secker. pp. 115. 5s. nett.)

In this stimulating essay Professor Abercrombie has given a remarkably lucid and closely reasoned exposition of his view of Art as the communication of æsthetic experience. In his general view of æsthetics he reveals very clearly the influence of Croce, though as his argument develops his divergence from him appears. He would give to the term " æsthetic " such a wide application as to include " all mental experience which carries on the face of it its own instant value." " By æsthetic judgment, I mean," he writes (p. 27), " the valuation of experience as such."

The meaning which should be attached to the term æsthetics is, of course, still very much a matter of dispute, but it seems to me unfortunate to extend the term so that it would include say a child's appreciation of a piece of toffee.

Professor Abercrombie is a thoroughgoing subjectionist. " Beauty is not a quality of things, it is a characteristic of experience." The distinction between Art and Æsthetic is that whilst the æsthetic experience may be beautiful, beauty must occur in Art. " Art is the expression of æsthetic experience." The artist " transfers his experience " to the recipient. It is here that we come to the characteristic view of the writer, that communication is essential in Art. A man " does not begin to be an artist until he begins to publish his experience."

Many will find it difficult to accept this view, but will hold rather that, in some cases at least, the artist would be impelled inevitably to express himself for the sake of a fuller realisation of æsthetic experience than can be obtained in pure imagination and which is impossible of realisation in actual life. Wagner even went so far as to say, " If we had life we should have needed no Art."

Professor Abercrombie, however, makes a brilliant defence of his thesis, and the essay, brief as it is, is undoubtedly one of the most important of recent contributions to æsthetics. C.W.V.

The Life of William Pitt : by J. Holland Rose.
(G. Bell and Sons. pp. lxviii+1202. 15s. net.)

This is a new and cheap edition, in one volume, of Dr. Holland Rose's two books, "William Pitt and National Revival" and "William Pitt and the Great War." All lovers of biography, as well as teachers of history, will welcome the opportunity of having these two valuable volumes in a form so inexpensive considering the length of the work. The treatment is so complete as to constitute almost a history of England for the period. Nevertheless the great figure of Pitt stands out clearly and forms an inspiring picture which justifies the author's quotation on the title-page :

> "A rarer spirit never
> Did steer humanity, but you gods will give us
> Some faults to make us men."

Light and Colour : R. A. Houstoun.
(Longmans, Green and Co. pp. 179+ix. 7s. 6d. net.)

Dr. Houston has written a book that will give pleasure to its readers. It is addressed "primarily to amateurs," and will undoubtedly make its appeal to them, for it is clear of technicalities, lucid in exposition, and up to date as regards information. The serious student of physics will also be interested, for the author has brought into relation some matters that have not usually been related in text-books of the ordinary type. Biographical touches serve to being out the humanistic side of scientific research, and apt illustration with at times humorous treatment give charm to an interesting book. The achievements of scientists in different fields are described, the parts played by light in astronomical investigation, photography, colour printing, medical treatment, etc., are dealt with, and Dr. Houston mentions the outstanding cases in which mental processes have been related to colour.

"Light and Colour" is a text-book for the amateur and good vacation reading for the student.

A History of English Literature : E. Albert.
(G. Harrap and Co., Ltd. pp. 542. 5s.)

This book is planned as a text-book for senior classes and is published at a moderate price. The information is well arranged ; there are many illustrative extracts ; but there is a danger that the student may be tempted to accept the book as a dull but easy substitute for his own response to the original texts. The following extracts (p. 172) may serve to indicate a type of statement which seems undesirable if the student is to be encouraged to read literature for himself :

"Though Dryden is heavily weighted with the ponderous mechanism of the heroic play, his gigantic literary strength is often sufficient to give it an attraction and a kind of heavy-footed animation," and, referring to "All for Love" : "the style, though lacking the daimonic force of Shakespeare's at his best, is noble and restrained."

At the end of each chapter there are a number of suggestive exercises. A.E.C.

NOTICES OF FOREIGN JOURNALS.

Journal of Educational Psychology, December, 1923.

O. J. Johnson contributes an article on the relation between ability to learn and intelligence as measured by tests. An experiment is described in which University students were set to learn reading print inverted in a mirror. Sixty students were divided into two "equal" groups on the basis of a group of intelligence tests, including part of the American Army Tests. It was found after twenty days' practice of ten minutes each that the improvement in the rate of reading was practically the same for each group, though one group was almost throughout slightly better than the other.

Twelfth Annual Conference of Educational Associations

held at

University College, London, 1—12 Jan., 1924

THE REPORT OF THE CONFERENCE

now being printed will contain, amongst others,
Papers Read on the following subjects :

"The Claims of Scholarship."
"The Value of the Teacher's Part in Education."
"The Education of Older Children and their entry into Secondary Schools."
"The Constitution of Local Education Authorities."
"A Liberal Education for all." "What is Culture ?"
"Realism and Idealism in Education."
"Present Day Art." "Art and the Man in the Street."
"Art and the Child." "The Diploma in Dramatic Art."
"Light and Life." "The Sun and Stars."
"School Journeys."
"Relation of Music to other Subjects."
"Music in School Chapels."
"The Ideal Concert Programme for Schools."
"Careers in Industry and Commerce."
"Industrial Adolescent."
"Vocational Guidance in Schools."
"Pre-School Education."
"Post Matriculation Work in Modern Languages."
"Direct Methods as applied to Middle Forms."
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Some Effects of Prolonged, Unvaried Mental Work.

PART II.

By F. M. RITCHIE.

THERE are many and varied opinions as to the effects of long-continued mental work. Some effects of such work in Kraepelin multiplication are well illustrated in the results of certain experiments done with three subjects, who on different occasions worked for ten hours with a ten minutes' pause every two hours. One of the three subjects on one occasion worked for ten hours without any rest.[1]

DEFINITIONS.

Before discussing the results of these experiments it is necessary to make clear the sense in which certain terms are being used. This is specially necessary in this case, as many of the terms in use in connection with work and fatigue are liable to more than one interpretation. Such, for example, is the case with the term "*practice.*" G. S. Gates, in the *Psychological Review*,[2] points out that in the literature of psychology we find at least four fairly distinguishable meanings of the word.

"*Practice*" here simply means repetition, with or without a definite effort, on the part of the subject, to improve the output in quality or in quantity, or in both. This distinction between practice with effort to improve and practice without such effort is important. In these experiments with the Kraepelin multiplication the subjects were all aiming at beating their own highest score as regards quantity especially, but also, though incidentally, as regards quality.

"*Practice effect*" means *any* effect that can be said to be due to repetition. This is an unusual definition, but it follows from the definition of "practice" above.

"*Improvement due to practice*" explains itself, and would be included under the heading "practice effect." The word improvement alone is sometimes used for the sake of brevity. It means *observable* improvement.

"*Limit of improvement*" is used in preference to the term "limit of practice," and means that stage where no *observable* improvement is made by a *large* number of further repetitions.

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[1] That is, without any observable rest.

[2] G. S. Gates: "The Meaning of the Term Practice." *Psychological Review*, 29.

DISCUSSION OF RESULTS.

RESULT 1.

Practice (almost daily) for months did not cause the subject to reach the limit of improvement.

Although in experimental investigations of work and fatigue, whether "industrial" or otherwise, many attempts have been made to reach the limit of improvement, and although it is often assumed that this limit has been reached, as far as I know, there has been no such persistent attempt as that of *Subject C*. This subject, between June 11, 1922, and March 24, 1923, worked for 277 quarter hours at the Kraepelin test. If we exclude her last ten-hour experiment (the no-rest experiment) and the three months' interval between her last two experiments we find that 237 quarter hours' work were done between June 11 and December 21, 1923. These were spread over 193 days, and yet the desired limit had not been reached, though the conditions would appear to be favourable, *e.g.*, the subject both wished to improve and made an effort to do so, and both "concentrated" and "scattered" practice were given. The number of calculations *Subject C* did per hour varies from 194 on the first day of practice, to 620 on the 103rd day. Her errors vary from 0, which was common in short practice times, to 40, which occurred in her first ten-hour experiment.

Similar results were obtained by *Subjects A and B*, though they did not pursue the practice so far. Subject A had at intervals for years practised the Kraepelin multiplication, and even in her case after two ten-hour experiments and twenty quarter hours' practices, there can be no suggestion that she had reached the limit of improvement. The same can be said of Subject B after two ten-hour experiments and eighteen quarter-hour practices, *i.e.*, ninety-eight quarter-hours in all.

The existence of this complication due to improvement is universally recognised in work and fatigue experiments, and statements as to its importance are extremely common.

RESULTS FROM OTHER EXPERIMENTS.

Wyatt and Weston[1] report an interesting experiment, which unfortunately had to be discontinued after about four weeks. It was thought that the essential feature of bobbin-winding might be utilized to form the material for a fatigue test,[2] and the two experimenters, under the auspices of the Industrial Research Board, carried out an experiment in connection with bobbin-winding in a mill in Lancashire. One conclusion they reach is that "even in the case of a test which so closely approximates to working conditions . . . the effects of practice is still evident after the test has been in progress three or four weeks." They emphasize the importance of the extended application of a test even though it appears to embody only those processes which the subjects have been performing several thousand times weekly for many years.

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[1] Wyatt and Weston: "A Performance Test under Industrial Conditions." *British Journal of Psychology*, Vol. X, Part 4.

[2] Contrary to popular opinion there is *no* accepted fatigue test. Indeed, even the possibility of the discovery of such a thing has been seriously questioned. See Muscio: "Is a Fatigue Test Possible?" *British Journal of Psychology*, Vol. XII.

Muscio,[1] too, came to the conclusion that experiments of a certain kind were absolutely valueless for the investigation of fatigue because of the complications caused by improvement through practice. He gave three tests (calculation, group number checking, and complex cancellation), eight times a day for five days to twenty women students. He decided from the results that some other means of overcoming the complications due to improvement through practice must be devised.[2]

The results obtained in my own experiments with the Subjects A, B, and C, emphasize these conclusions. If these results can be taken as an indication of the time generally required to reach the stage of "limit of improvement" or even the stage where the improvement is so little that it can be ignored, then obviously extended practice by the subject is not a feasible method of getting rid of the complicating factor of improvement due to practice in work and fatigue experiments.

It must not be concluded that the kind of experiment under discussion, although of doubtful value in fatigue investigations at present, is altogether valueless. There remain other values, *e.g.*, the light it may throw on the Learning Process.

METHODS OF DEALING WITH THE FACTOR OF IMPROVEMENT DUE TO PRACTICE.

Unfortunately, though the importance of this improvement factor is universally recognized, it is not by any means universally respected. One might suppose that when an experimenter has become alive to the importance of dealing squarely with the interference involved, he would proceed to do so. Such is not always the case.

Those who try to deal with the matter fall roughly into three groups.

(*a*) *Those who aim at reaching the limit of improvement by preliminary practice.* Too often when this method is adopted, the procedure is that a little preliminary practice is given; then follows a dismissal of the subject with perhaps an intimation to the effect that the improvement due to practice is now negligible, or that a sufficiently high stage of proficiency has now been reached. Without more proof than is generally given it is impossible to consider these statements as other than mere suppositions.

(*b*) *Those who aim at making allowances* for improvement by means of calculation and alteration of scores obtained or by elimination of the vitiating[3] effects of improvement by methods of experimentation. This is a popular way out of the difficulty, but it is generally unconvincing, for the grounds on which the calculation or "elimination" by experimentation are founded are usually so vaguely expressed as to be inexplicable to the reader. If any such plan is adopted, a detailed justification of the method ought to be given; this procedure is unfortunately the exception rather than the rule.

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[1] *British Journal of Psychology*, Vol. X, No. 4. Muscio, B.: "Fluctuations in Mental Efficiency."

[2] He suggests the method of equal groups. See below, p. 86.

[3] Vitiating from the point of view of the experiment.

(*c*) *Those who face the difficulty* and bring forward feasible suggestions for overcoming it. These are in the minority, and are forced to admit that so far even in their own experiments it has not been satisfactorily overcome.

Max F. Meyer[1] expresses the opinion that " one should bravely face the enemy, that is, the learning process. Indeed, instead of avoiding him one ought to invite him to co-operate. . . . How to get rid of the learning curve is a separate problem." He believes that the problem is easily solved, and states that in experiments " now in progress " he is using a simple method, which seems capable of solving it. " But," he cautiously adds, " the experiments will not be published until more data have been accumulated," and he therefore abstains from counting his chickens before they are hatched. One looks forward with much interest to the hatching. As far as I know it is still an event of the future.

Misleading statements to be avoided.

If, as is suggested, the method of attaining the "limit of improvement" by repetition be rejected in fatigue experiments, it is perhaps necessary to fall back on some other method of ensuring that results will not be vitiated by the " improvement factor." This may conceivably be done by some method of allowance-making, or of experimentation, but it is absolutely necessary to recognize the necessity for avoidance of vague statements which tend to give the impression that there exist such methods, generally accepted, and in general use.

It is more than doubtful whether satisfactory methods have yet been devised.

Method of equal groups.

Muscio[2] has suggested that the method of " equal groups "[3] can be used. In this method an attempt is made to place the subjects in groups equal in capacity for the given test. When so arranged the test is given to one group before work and to the second group after work. The difference in results obtained, it is suggested, may then be considered a probable fatigue effect, or at any rate it would not be due to practice,[4] as the two groups would be at an identical stage of practice in the hypothetical condition stated.

The experiment by Muscio already referred to (p. 84) is as follows: He carried out three tests (calculation, number-checking, and cancellation). He gave the three tests eight times a day to twenty young women engaged in continuous academic work. Results showed him that " experiments of this kind are absolutely valueless for the investigation of fatigue because of the complications caused by practice." The subjects were still improving at the end of the fifth day, and the opposing influences of practice and fatigue could not be satisfactorily evaluated.

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[1] *Psychological Bulletin*, No. 19.

[2] Muscio: " Fluctuations in Mental Efficiency." *British Journal of Psychology*, Vol. X, Part 4.

[3] This method was used by Winch in 1908. See *Journal of Education*, X, I: " Some measurements of mental fatigue in adolescent pupils in evening schools."

[4] This means that the results obtained would not be vitiated by improvement due to practice.

CRITICISM OF THE METHOD.

In order to separate the effects of fatigue from those of practice he then used the "method of equal groups." The method as used by Muscio cannot be fully discussed here, but there is some reason to think that his method is unsatisfactory. In his experiment one set of subjects (A) had already practised eight times a day for five days, each practice lasting a few minutes, *i.e.*, altogether a few hours. This set was divided into two equal groups, A1 and A2, on the total results for the test 3, obtained on the fourth day of the previous practice.[1] He states, "Each A subject was thus given a position in a subject-group on the results of eight separate test periods at a fairly advanced stage of practice. The ranking of these subjects has therefore considerable reliability. But has it? Admittedly the output from groups A1 and A2 was sufficiently close to enable one to say that *on that day* the groups A1 and A2 were equal as regards output, but can any one day's results taken separately be an accurate measure of a subject's capacity for a given test?[2] And is not the expression "a fairly advanced stage of practice" misleading, and inexcusable even on the grounds that the exact amount of practice has been stated.

EFFECT OF INDIVIDUAL DIFFERENCES.

Even if it could be granted that the groups were equal, how long will they remain so? Some writers suggest that as an operation becomes familiar to the subjects individual differences increase. Others suggest that the differences decrease.[3] If they do either, or sometimes one and sometimes the other (depending on existing conditions of work, kind of work, etc.) then even in "equal" groups the differences in output between the resting group and the working group may easily be due in part at least to improvement, especially when in each group there are only a very few subjects.

If, however, it can be shown that the increased or decreased heterogeneity in Group A was equal to that in Group B, the value of the method of equal groups would probably be great, at least so far that results obtained by using it might give a measure of the fatigue in a group. It is more doubtful whether the method will prove of value in investigating fatigue of the individual. Also if individuals differ very markedly in fatiguability the value of a determination of "group fatigue" is thereby greatly limited. It may be that this is the best method yet devised, but its imperfections must be realised if the most is to be made of the results obtained by means of it. In spite of its possible imperfections it seems infinitely preferable to allowance-making in the scores.

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[1] Not on the last day (*i.e.*, the fifth), because one subject was absent then.

[2] See Result 5—Uneven improvement, page 93.

[3] See (*a*) Hollingworth, H. L.: "Individual Differences Before, During, and after Practice." *Psychological Review*, Vol. 21.
(*b*) Dearborn and Lincoln: "A Class Experiment in Learning." *Journal of Educational Psychology*, Vol. XIII.

METHOD OF ALLOWANCE-MAKING.

The difficulty of making allowances for improvement depends largely on two facts :—

(1) The oft-demonstrated fact that improvement is more evident in early than in later stages.

(2) The fact that improvement is discontinuous. Discontinuity can no doubt sometimes be traced to external and internal conditions which are known and which can sometimes and to some extent be controlled. But in addition it seems to have as a contributing cause " some unconscious process, allied perhaps to consolidation, and improvement could not occur unless time were allowed for this process to develop."[1] Where and when in an experiment the results of this development are going to occur cannot in the present state of knowledge be foreseen. It is clear that the effects of practice do not all, nor always, show themselves at the time of experimentation.

Fluctuations in output seem to be so erratic and to be due to so many causes, some known, many suspect but unknown, and perhaps even some not only unknown but unsuspected, that at present our knowledge of the matter does not permit any accurate prediction, and allowance-making is too liable to be little more than an unwarrantable juggling with figures.

The investigator who succeeds in getting over or round the difficulty will, in all probability by so doing, open a wide field for a large number of fatigue investigations more worthy of the name than many of the existent so-called " fatigue " experiments.

SUBTLETY OF " IMPROVEMENT FACTOR."

A few examples taken from recent literature on the subject will show the almost incredible subtlety exercised by the " Practice Error " (*i.e.*, improvement factor) in creeping into experiments on work and fatigue.

Thorndike[2] refers to the difficulty thus : " Unfortunately, the great majority of studies of continuous mental work have not included sufficient preliminary work to put the function beyond the point where a considerable discount has to be made for practice," and in reference to an experiment by Arai,[3] " it has the special merit of measuring the effect of continuous exercise[4] of a very difficult intellectual process as free as possible from sensory or muscular work at a stage when it was almost free from improvement by practice over a very long period[5] and on four different occasions." And again, after doing 189 examples requiring about thirty-five hours (during the week February 24th to March 2nd) " . . . the subject reached a point where practice effect was very slight."

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[1] See Myers : " Text-book of Experimental Psychology." Part I, p. 181. See also discussion of Result 3.

[2] Thorndike : " Work and Fatigue." *Journal of Educational Psychology*, Vol. III.

[3] Multiplication of four-place numbers by four-place numbers " mentally." See Arai : " Mental Fatigue."

[4] As Thorndike points out (see *Educational Psychology*, Vol. III) p. 13, "Exercise is continuous only in the sense that the subject does his best to make it so." Obviously multiplying four-place numbers by four place numbers gives much scope for " in-between-times "—perhaps involuntarily. It had the advantage though of the absence of much sensory and muscular work.

[5] From about 1-45 p.m. to about 10 p.m. with a stop for dinner.

Turning to Arai's account of her experiment[1] we find the statement, "the subject should be tested at or near the limit of practice," but we find also that she practised only on four days (though much practice each day before her experiment.

The time taken to do the first example (the first is chosen simply for convenience) on each of the four days was :—

1st day	9 mins.[2] (4 errors).
2nd day	3.55 mins. (4 errors).
3rd day	2.16 mins. (3 errors).
4th day	4.30 mins. (5 errors).

Compare these results with the time taken to do the first example on the day of the experiment, *i.e.*, 2.25 minutes (2 errors). Only once before on the four practice days had she attained this speed and, indeed, this accuracy.

She decided that the work was not sufficiently fatiguing and changed her method. Instead of having both numbers "presented to perception" she held them "in memory."[3] The time taken for the first sum on each of the six days after the change of method is shown below.

	Feb. 24	Feb. 25	Feb. 26	Feb. 27	Feb. 28	Feb. 30
Time in minutes	14.10	5.40	7.30	4.30	5.30	6.50 mins.
Errors	3	2	3	2	3	2 errors.

Does this really indicate a stage of practice "almost free from improvement ?" On March 3, 4, 5 and 6, mental multiplication was done from 11 a.m. to 11 p.m. "without any pauses,[4] except the two or three seconds between the examples for recording time."

The times taken for the first calculation on each of these days was :—

Time in minutes	5.50	4.30	5.10	5 mins.
Errors	5	0	0	0 errors.

Surely, if one can judge at all from these numbers, there are still very obvious signs of increasing facility in the operation, possibly in accuracy as well as in speed.

Later (p. 88) in discussing "The Course of Fatigue" we find the following statement with regard to curves drawn from results of the experiment under discussion : "First, the length of the curve increases in the later tests. Since the subject ceased to work the very moment when she thought it desirable to do so, the increase of the working period means that the subject's ability to continue the work increased. This is either because the subject gained by practice a greater power to resist the impulses to stop work, or because the work became actually easier as a result of practice or both. Second, the form of the curve varies according to the amount of practice. In general, the curve first falls and then rises ; this shows that the effect of practice is stronger than was that of fatigue at the beginning and *vice versa* towards the end. In the earlier tests, the fall and rise of the curve are more marked than in the later tests ; this signifies that both gain by practice and loss by fatigue become smaller as one's practice is greater."

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[1] Arai : "Mental Fatigue," p. 32.

[2] The shortness of this time suggests much previous unrecorded practice.

[3] This means that part at least of the "fatigue" produced is probably due to the effort of memory necessary.

[4] *i.e.*, any deliberate pauses. See Footnote 4, p. 88.

Truly it seems to be easier to recognise the working of the factor than it is to respect it in doing experiments, and especially in discussing results.

G. E. Phillips in a very suggestive thesis[1] criticises Thorndike, Arai, and others on this point, and states (p. 23) : "It seems to us absolutely necessary, if any definite results are to be gained in the study of the phenomena of fatigue, that the effects of practice should be either abolished by having thoroughly practised subjects, or nullified by the method of experimentation." Having still one-fifth of the thesis to read we look forward to good things and we find them, but not, alas, that one good thing for which we hoped. Space does not allow a consideration of his results, but it seems to me more than doubtful that he succeeds in meeting the difficulty by his method of experimentation. I will quote one passage from page 64 : "The curve of multiplication . . . has not reached the horizontal stage, but the general course of the curve shows plainly that this stage is about to be reached. As the work of the experiment proper follows the practice work, it is evident that, during the experiment proper, the curve of practice is approximately horizontal."

The question is : Is it wise to take anything for granted in this kind of work ?

A comparison of some of his curves[2] with that of Subject C[3] will, I think, give the answer.

RESULT 2.

PRACTICE EFFECTS OF 10-HOUR CONTINUOUS WORK PERIODS.

The quality and quantity of output seemed to improve greatly in practice times on days soon after long experiments.

A striking example of this is in Series A.

The highest score before Experiment 2=463 calculations, with 3 errors.
The highest score during ,, 2=410 ,, ,, 1 error.
The score on the day after ,, 2=433 ,, ,, 3 errors.
And the score on the 2nd day after 2=507 ,, ,, 1 error.

The results in Series B and C are similar to those of A.[4]

Hollingworth[5] in reference to experiments which he describes, says : "It should be noted that during these intensive days there was practically no improvement in any of these tests, either during the day or from day to day. Adding and opposites are the only tests which show any such gain at all, and here the gain from one day to the next is all that shows and this amounts to only 1% and 3%."

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[1] Phillips, G. E. : "Mental Fatigue."

[2] Phillips : See curves opposite pp. 14 and 63.

[3] FORUM OF EDUCATION, Vol. II, No. 1.

[4] In comparison it is of interest that Lindley found that the greater part of the practice disappears within twenty-four hours after the cessation of work (See "Psychology," Arbert, Vol. III, p. 482 ; quoted by Arai, p. 25.)

[5] Hollingworth : "Variations in Efficiency during the Working Day." *Psychological Review*, 1914.

The fact that there was no apparent improvement in a test during the day must not be taken as proof that there was no facilitation of the process involved. Also it must be recognised that if one gets on several successive days little or no increase in output one cannot therefore claim to have reached the limit of improvement. Consider for example some results of Subject C. At five successive practice times[1] we get output as follows :—

Calculations	298	310	315	323	323
Errors	2	1	2	3	2

The improvement in output is shown by the percentages 4 ; 1·6 ; 2·5 ; 0. May we from these figures conclude that improvement is now negligible? Further results show that this is not the case. Further practice raised the output to 617 calculations per quarter hour with three errors.

This increase after the long experiments is a constant feature brought out by the long experiments. It is possible that the sudden increase is less than it would at first sight appear. The practice curve follows immediately the end of the long experiment curve, when the level of output is comparatively low. This tends to increase the impression of very great and sudden improvement. At the same time there is no doubt that there is a marked improvement. The ten-hour experiment seems to have a favourable effect on the work that follows it. The reason may be that improvement, though occurring during the long experiment, is not apparent because masked by other factors, *e.g.*, fatigue or boredom ; or it may be that changes, perhaps of the nature of consolidation, were taking place which would not be apparent in output until they had reached a certain point. If the latter, we might have one of the factors causing the, at present, inexplicable variations, plateaux, and spurts which occur in most work curves.

Is then long practice, even if boring and possibly fatiguing, nevertheless good? It may be that the best improvement effects are not obtainable when only short daily practice is given, but that concentrated practice facilitates the improvement process. The data available does not make it possible to find whether or not the improvement after a ten-hour experiment is greater than after ten hours' practice when practice has occurred in quarter-hours daily. It is reasonable to hypothesize the possibility that, in the learning process in general, concentrated as well as scattered practice is likely to give the best results. It is, however, clear from results in output and from introspections got from these experiments that facility in a process may increase during concentrated practice in the process even when the concentrated practice is not on the highest level possible to the subject at that stage and even though boredom and probably a degree of mental fatigue are present.[2]

As mentioned in the previous article, it is interesting, in view of the increase in output after the long experiments, to speculate as to the possible comparison between the time required to reach the acquired stage of proficiency under the conditions of concentrated practice, and the time which would have been necessary to reach that stage had the practice been "scattered." Would the increase in facility have been as great, or greater, if the practice provided by a ten-hour spell had been scattered over 40 days, one quarter-hour practice being done each day?

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[1] See 1st July, *et seq.*, " Curve of Subject C." Forum of Education, Vol. II, No. 1.

[2] Arai, " Mental Fatigue," p. 19. " The fatigue resulting from both physical and mental work has an unfavourable effect on the influence of practice."

The results of Series A, B, and C do not give any reliable indication of the difference between the improvement effect of scattered and that of concentrated practice. In many cases it is impossible to decide the cause of the increase. It may be that in some cases the increase which appears during the time of scattered practice is really due to the concentrated practice that preceded it (or *vice versa*), and would have appeared even without scattered practice, as it did in some cases where daily practice was not done after long experiments and even after months there was an increase in output.[1] This point has a very direct bearing on many educational problems.

RESULT 3.

LATENT PRACTICE EFFECTS.

A higher average in output was obtained in the 2nd ten-hour test than in the first of each subject, although little practice was done between the two experiments. This was especially so in B and C, but also noticeable in A.

Improvement did not show during Experiment 1, except perhaps slightly near the beginning, being swamped by other effects, but it seems to have existed during the experiment, swamped or latent. It may be that the act of practising provided the necessities for a later appearance of the improvement effect by setting up some kind of process or mechanism, similar perhaps to the kind of thing we get when we go to sleep with a problem in mind and find it has solved itself while we slept. In some way increased facility has been obtained and retained, as shown by the higher average level of output in Experiment 2.

In discussing Result 2 it has already been mentioned that in some cases the improvement carried over months of non-practice.

RESULT 4.

RESERVATION OF ENERGY.

There was a low level in quantity of output in Experiment 7 (Subject C) compared with the output in practice times for months before. There was also a lower level almost from the beginning in Experiment 8 (no-rest ten hours experiment) than in Experiment 7. This suggests a reservation on the part of the subject, *i.e.*, that she adopts perhaps unconsciously the attitude that she has to expend much energy in the experiment and that therefore she must be careful of it. The end spurt which occurs in both Experiment 7 and Experiment 8 lends support to this view.

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[1] See discussion of Result 3.

H. M. Vernon,[1] in a report of an investigation connected with tile-pressing, states that " the frequency distribution of the output values shows that a considerable amount of restriction was practised by the women " ; and again, " It looks as if the women had an unconquerable desire to work to a fixed standard of some sort." Possibly some such factor is at work here, too.

Experiment 8 (without rest) has a lower average than Experiment 7 (with rest), 436 calculations per quarter-hour in Experiment 8 compared with 467 in Experiment 7. This difference seems very little in view of the different conditions under which the experiments were done. A consideration of the errors gives a surprising result. In Experiment 8 the average number of errors per quarter-hour is 12½ and in Experiment 7 it is 15½, *i.e.*, more errors in the experiment where rest is taken than when not taken. Is this, too, the work of the practice factor ?

RESULT 5.

There was a gradual though uneven improvement both in speed and accuracy (except during the long experiments).

In the case of Subject C the rise continues to the beginning of Experiment 7, and though the average of Experiment 7 is below that of the practice times immediately preceding it, it is above that of Experiment 6. This improvement being due to practice need not be discussed much further.

Practice effects are not confined to increase in quantity and quality of work. The term " practice effects " would include not only facilitation in the actual multiplication process, and a possible mechanization of the process, but also such effects as increased ease[2] in resisting disturbing influences, in power to work more easily for a long period, and so on.

MEASUREMENT OF IMPROVEMENT.

Attempts have been made by many workers on the subject[3] to measure the improvement, but in view of the uneven improvement which is a common characteristic of work curves it is questionable whether the attempts are of much value, especially if they are based on work done in a very limited time.

RESULT 6.

POORER OUTPUT IN LONG EXPERIMENTS.

During the long experiments there was a downward tendency in the number of calculations per quarter-hour and an upward tendency in the number of errors per quarter-hour.

Tending to give this result are probably amongst others the factors of boredom, habit, monotony, and it may be, fatigue, but it is impossible to separate the results of each. There seems to be little doubt that the subject is at times not as incapable as would appear from her momentary output. The decrease in capacity is to some extent at least only apparent, not real. Otherwise it is hard to explain the end spurts which occur. It may be that there is an extra reserve store of energy,[1] only available under such conditions as interest, or knowledge that only a small further supply is needed for present purposes. We might then get end spurts even when the subject's normal or ordinary capacity was exhausted. But with this explanation other questions immediately arise. Must this reserve store be replenished before the subject is rested? Or before the normal supply is replenished? Or will it be replenished by degrees, the normal store being replenished first?

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[1] H. M. Vernon : " A Note on the Causes of Output Limitation." *Journal of National Institute of Psychology*, Vol. I, No. 5.

[2] Or *decreased* ease perhaps, *e.g.*, if boredom or fatigue resulted.

[3] See *e.g.*, Arai, " Mental Fatigue." She calculates the " average daily practice gain " and the " amount of fatigue."

After the experiments there were no definite indications of permanent lack of energy either in general or as shown in output during the next day's practice time. On the contrary the results often were good.

RELATION OF QUALITY TO QUANTITY OF OUTPUT.

It is often supposed that quantity and quality of work tend to be inversely related.

RESULT 7.

Errors during practice times remained low, usually between 0 *and* 4 *per quarter-hour*[2] *and rose during long experiment.*

Subject C in her first long experiment, *i.e.*, Experiment 5, averaged 22½ errors to 321 calculations.
,, ,, second experiment, *i.e.*, Experiment 6, averaged 18 errors to 370 calculations.
,, ,, third long experiment, *i.e.*, Experiment 7, averaged 15½ errors to 467 calculations.
,, ,, fourth long experiment, *i.e.*, Experiment 8, averaged 12½ errors to 437 calculations.

The correlation[3] between quality and quantity in Subject C's last experiment (no rest) is only ·1, while the probable error is ·07.

A question which arises concerning speed and accuracy is whether, in the attempt to gain proficiency in an operation we would do better to concentrate on speed or on accuracy. In these experiments, where attention was concentrated on speed, two of the subjects rapidly reduced the errors at practice times practically to zero. One of the two (*i.e.*, A) even in the long experiments was very accurate. The remaining subject (B) although slower to eliminate errors with practice was certainly reducing them. It may be that here was involved an individual difference and that it would have been better from the point of view of accuracy if Subject B had not been concentrating on speed.

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[1] See Claparede: "Experimental Pedagogy," p. 278.

[2] Except at the very beginning and once or twice exceptionally.

[3] As calculated from Spearman's formula, $R = 1 - \frac{6\Sigma g}{n^2 - 1.}$

In this connection G. E. Bird[1] writes: " . . . If the method and the speed are taken care of, the quality will take care of itself," and Mary Sturt,[2] writing about typewriting, says, " It seems probable that a high quality of work can be obtained without insisting on a high quality constantly throughout the learning process. This would appear to have a very general bearing on methods of teaching." She also adds concerning " movements such as are employed in typewriting," that " if attention is directed solely to speed the accuracy tends to diminish."

In the three series of experiments practically no attention was paid to the securing of accuracy. Attention was concentrated on securing speed. And yet, very strikingly in two series (A and C), but also in the remaining series (B), accuracy was speedily attained.

Can we then in certain kinds of school work concentrate on speed and leave accuracy to look after itself? It need hardly be said that the results of these experiments alone cannot answer this question.

ERRORS.

It will have been noticed that little attention has been paid to errors when the results were being examined.

No satisfactory method was devised for converting the two measures of quantity and quality into " a single index of " net efficiency. "[3] Thorndike in dealing with certain results claims to have " turned gross scores into terms of a single variable by adding five seconds for each error," but there does not seem to have been any satisfactory special reason for choosing *five*.

A deduction of one calculation for each five errors has been suggested by Professor Valentine on the basis of a consideration of the number of possibilities of making mistakes. Each calculation really involves three separate calculations as well as several acts of selection of figures. An examination of the results of Subjects A and C seemed to show that little change would be made in the calculation curve even if the results were so treated. It may be that in the case of Subject B, whose errors were comparatively numerous, it would be well to make the reductions.

FLUCTUATIONS.

Many factors appear to be at work in the production of variations in output, *e.g.*, practice, fatigue, disturbances internal and external, boredom, variation in interest, and variation in effort.

Attempts at explanation are not always satisfactory, as the occurrence is often erratic.

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[1] G. E. Bird: " The Devious Path of Slow Work." *Journal of Educational Psychology*, Vol. XIII.

See also Thorndike, E. L.: " Relation between Speed and Accuracy in Addition." *Journal of Educational Psychology*, Vol. V.

[2] Mary Sturt: " A Companion of Speed with Accuracy in the Learning Process." *British Journal of Psychology*, Vol. XII.

[3] Whipple: " Manual of Mental and Physical Tests," p. 9.

Myers[1] believes the variations to be the results of distraction, flagging interest and increasing fatigue.

Claparede[2] expresses the opinion that slackenings are due to ennui rather than fatigue.

Muscio,[3] discussing "Fluctuations in Mental Efficiency," examines and rejects for the most part: feeling of weariness, diminution of volitional effort, temperature and humidity, taking of food, fatigue caused by "work," as causes for drops in output. He concludes that "It is best at present to say that the causes of these falls are not known."

Thorndike[4] expresses his opinion of certain work of Kraepelin and his followers thus: "It is possible that the fluctuations to explain which they have invoked 'initial spurt,' final spurt, spurt after fatigue, spurt after disturbance, or the rhythm of attention are one and all accidents of the unreliability of the determinations."

Farmer[5] thinks that if the irregularities in an output curve are too great we may suspect that fatigue is present in a high degree, since such variations are often a sign that work is being done mainly by voluntary effort and that the factor of rhythm is not brought sufficiently into play. An examination of output and of introspective remarks of Subjects A, B, and C, suggest that possibly something of this sort was happening. At the beginning of the work there was novelty, and an overcoming of inertia tending to produce an initial rise. Boredom and perhaps even fatigue then became effective, tending to a fluctuation of attention and a consequent fall in output. A "feeling" of slacking (not necessarily in the focus of consciousness) recalled attention, another rise was caused, and so the process went on, other factors entering at times and causing further variations.

Individual Differences.

The results of my experiments in Kraepelin multiplication give some grounds for suspicion of an interesting individual difference between the subjects, especially between A and B.

It is not suggested that individuals can be divided into distinct types in method of working, but judging roughly from results of the first quarter-hours in two-hour work spells, Subject B would belong to a type which attains maximum efficiency (quantitatively) after an interval which is sometimes short, while Subjects A and C would belong to a type which attains maximum efficiency at the start and thence decreases with many fluctuations.

All three subjects were women, so this result at least does not negate Meumann's[6] conclusion that probably a third type, *i.e.*, one which attains maximum efficiency only after a long period, perhaps several hours, of work is more commonly found in men. If, however, the subjects had been judged from other experiments (*e.g.*, Subject A on her second ten-hour experiment) they would probably have been placed in Group 3.

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[1] "Text Book of Experimental Psychology," Part I, p. 182.

[2] "Experimental Pedagogy," p. 279.

[3] *British Journal of Psychology*, Vol. X, Part 4.

[4] "Educational Psychology," Vol. III, p. 53.

[5] Farmer: "The Interpretation and Plotting of Output Curves." *British Journal of Psychology*, Vol. VIII, p. 310.

[6] Whipple: "Manual of Mental and Physical Tests," p. 476.

CONCLUSION.

The results of these experiments indicate very strongly the necessity for a more careful consideration of the " effects of practice " than is usually given in fatigue investigations. This being so, statements founded on results of experiments which involve the " improvement " factor must be received very guardedly, and the vagueness of our knowledge of mental fatigue recognised. Many popular beliefs on the subject have yet to be proved or disproved by experiment and exact observation.

A few results obtained have not yet been discussed. They are, however, suggestive, and must be referred to briefly: "Physical" fatigue rather than "mental" fatigue was felt by the subjects during the long experiments. No definite relationship was found between feeling and output. No conclusion was reached as to the effect of time of day on output, nor as to the presence or absence of rhythm in the work curves. There seemed to be an " involuntary mechanism " of the process involved. The subject sometimes wrote or began to write the correct figure before it " came to mind," *i.e.*, she seemed to " work ahead."

With the results of these experiments in view many questions arise. Two of these are :—

(1) Were " healthy " curves of work obtained by ten hours' continuous or almost continuous mental work with the Kraepelin multiplication ?

(2) Did the subjects find the work so fatiguing as to make a repetition undesirable ?

Were " healthy " curves obtained ?

This question can be considered in the light of Farmer's[1] criterion for judging whether or not the shape of a curve is good. He points out that we are not in a position at present to give any mathematical formula for arriving at a coefficient of fatigue and so must be content with general considerations. Briefly these are :—

(*a*) If the irregularities in an output curve are too great, we may suspect that fatigue is present in a high degree.
(*b*) If the drop throughout the day which manifests itself in most output curves continues without any check, it is a bad sign.
(*c*) If an end spurt is present, it is a good sign.

Judged by this criterion the work-curves of the three subjects in my experiments seem to be " healthy."

It is difficult to compare the curves in order to find which is healthiest, for " a single index of net efficiency "[2] has not been found. And a consideration of variations in calculations gives a different result from that given by a consideration of variations in errors.

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[1] Farmer, Eric : " The Interpretation and Plotting of Output Curves," *British Journal of Psychology*, Vol. XIII, Part 3, p. 310.

[2] See Footnote [3], page 95 of this article.

For example, the second ten-hour curves of Subjects A and B were more healthy than their first ten-hour curves, if judged by the variation in the number of calculations, but less healthy if judged by the variation in the number of errors. The opposite seems to be true in the case of Subject C's work-curves. Her first ten-hour curve was more healthy than her second as regards calculations, but less healthy if judged by the number of errors. Subject C's fourth ten-hour experiment (*i.e.*, Experiment 8), in which no rest was taken, falls, if judged quantitatively, into the place one would expect it to take, *i.e.*, it is the least healthy of the four, but if judged qualitatively it appears to be more healthy than either her first or her third experiment, but less healthy than her second.

Effect on the Subjects.

There is no evidence that any of the subjects found the work unduly fatiguing.[1] Some very temporary ill-effects are suggested, but it is impossible to say to what extent these were due to the work. In any case, there were no ill-effects which did not disappear after a night's rest, and there was no desire on the part of any subject to avoid a repetition of the prolonged work. The fact that all the subjects were accustomed to hours of prolonged study ought perhaps to be emphasized.

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[1] This is an unsatisfactory phrase, but I cannot find a better one

Education Authorities.

By JOHN STRONG.

It is generally admitted that educational administration in this country has not yet reached its final stage of development. At various times criticisms have been directed against the constitution and powers of the central authority and the local authorities, and the lack of a clear definition of the relation between the latter and the central authority. As matters exist at present there is not that proper co-ordination in education which a sound system demands, nor is full advantage taken of local knowledge, either centrally or locally. It is to eliminate such defects as these as well as to ensure a larger measure of devolution that the suggestions in this article are made.

At the outset it may be stated that these suggestions are not made with a view to overturning the existing system, but rather to indicate how, with a minimum of change, it may be adapted to an environment which has considerably changed in the last twenty years. It is conceded that the Act of 1902 has brought about a great improvement in our education system, and that the great progress which has been made, especially in higher education, is due in large part to the provisions of that Act. Accordingly, there is no suggestion that its essential features should be changed. For one thing, it is not suggested that the powers of the local authorities or such autonomy as they possess should be diminished but rather that they should become more effective by co-operation. It is conceded, too, that the Board of Education, since the Act of 1899, has done a great and important work in unifying education in this country, and that it can and ought to play an important part in the development of education in the future. There is no proposal, therefore, to supersede the Board. On the contrary such proposals as are put forward are intended to extend its usefulness by concentrating its work on broader lines and larger issues such as one would naturally look upon as the proper functions of a central authority.

One of the main features of the proposals is the suggestion that provincial education authorities *with specific and limited powers,* intermediate between the local authority and the central authority, should be instituted. This would mean that the country would be divided into seven or eight education provinces, of which, for instance, Wales would be one. It would entail, too, certain adjustments and changes in the existing authorities, central and local. Two of these changes in the local education authorities, apart altogether from the institution of provincial education authorities, would seem to be desirable. They have reference to non-county boroughs and urban districts on the one hand, and to the co-opted element in the local education authorities on the other.

It is well known that non-county boroughs and urban districts are the local authorities, not for secondary education, but simply for elementary education in their districts. This is not a sound education principle. To separate primary from secondary education in this way cannot be defended on educational grounds. In point of fact the division is an undesirable relic of the Education Act of 1870. Accordingly the suggestion is made that these two authorities should be merged into the county education authority, and that other and more satisfactory means should be taken to preserve local interest. If this be done, the local education authorities would then be reduced to two—the county and the county borough.

With regard to co-option, it is found, as the result of a statistical inquiry into the constitution of local education committees, that, in general, full use is not made of the powers of co-option under the Act, the purpose of which is to introduce an element with real knowledge of education into these committees. In particular, on the part of some authorities, there is a singular disinclination to co-opt teachers in active service. It would seem that the smaller the authority the greater is the fear of the expert. This condition of affairs is in direct contrast to that which exists in Scotland. There, by the Act of 1918, the bodies which correspond to the local education committees in England and Wales, must each have at least one teacher as a member of the committee. This teacher is not elected by the authority, but by the whole body of teachers in the area for which it is appointed. The suggestion is that the Education Act of 1902 should be so amended that a reasonable proportion of co-opted members should be compulsory on every local education committee.

With respect to the provincial education authorities the proposal is put forward that the constitution of these authorities should be based on *pro rata* representation drawn from the local education authorities. Each provincial education authority would then appoint a provincial education committee, which would consist of a majority of members of the parent authority and a minority co-opted from persons interested in education. This minority would be drawn from the Universities, Technical Colleges, and other educational institutions in the province and should consist of persons of wide experience and interest in education. It would be hoped, too, that educational bodies and associations in the province might nominate some part of the co-opted element. In addition an assessor appointed by the Board of Education would be a member of the committee and would act as liaison officer between the province and the central authority. The institution of such a provincial education authority, it may be said, would not entail any modification of the Local Government Act of 1888, nor would it mean a departure from the existing principle of "municipalization of education."

The functions of the provincial education authority would have to be carefully defined, and would naturally include such matters as the consideration, simply with a view to co-ordination, of schemes of development proposed by local education authorities. The representatives of the local education authorities, acting as a provincial authority, would be able to adjust these according to provincial requirements, which they would well know. A provincial area, for instance, could institute and, if necessary, control a scholarship system over a wide area. In conjunction with the Board of Education it might formulate a more satisfactory scheme of inspection than exists at present. It would naturally, also, consider the recruitment of teachers and their training, and, in general, act in an advisory capacity to the Board of Education on matters affecting a province. It would administer the Parliamentary grants assigned to it and distribute them according to its own scheme. Such a duty assumes that the present method of distribution of grant would give place to a " block-grant " system, such as exists in the case of Scotland.

With regard to the Board of Education, various criticisms have been directed against it in recent years. I do not propose, however, to enter into these in detail, but it would seem that the main criticisms come under three heads: (1) that the Board never meets; (2) that its constitution is such that its personnel is not sufficiently in touch with local needs; (3) that it tends unduly to extend its powers and in consequence has become more and more unwieldy with a tendency, no doubt natural, to split up into water-tight compartments. It is not too much to say that many minor matters and matters of detail, which are now dealt with by the central authority, could be performed quite as efficiently by local or provincial authorities, with the added advantage that it would leave the Board free to consider questions of larger policy without being hampered and overweighted with minutiæ of detail.

The proposals for the reconstitution of the Board are directed toward getting rid of these defects. It is suggested that the Board occupies the same position in regard to Parliament as the local education committees do in regard to the local education authorities, and that it would be a reasonable proposal to reconstitute the Board on lines similar to local and provincial education committees. This would mean that the Board would consist of a certain number of members of the Government as at present, together with a minority of co-opted members, who might be drawn from the various provincial authorities or from other educationists of standing in the country. Two immediate results would follow: in the first place, the newly constituted Board would meet regularly, and, in the second, it would contain an element which would have direct knowledge of local education. In consequence, it would be in a position to make decisions which would not be wholly dependent upon the advice of its staff of officials.

At this point it may be said that there is no suggestion of superseding the advisory function of these officials. Any attempt to deprive the Board of the very valuable assistance of such an able staff of officials would be a deplorable mistake. The necessity of the existence of such a staff would not be removed by the proposals. The difference—and it is a material one—would be that officials would advise a Board which met regularly and which made its decisions after due collective deliberation. The question as to the position of the President arises here. I take it that he would still be responsible to Parliament as at present. No difficulty would arise when he was in agreement with the majority of the Board, and this would always be the case if he were supported by his Government colleagues on the Board. If he were not so supported, as he would have to defend his position in Parliament, it would seem proper that his view should prevail for the time being. A contingency such as this, I imagine, would seldom arise, since a Minister out of harmony with his Government colleagues would naturally resign office.

The functions of the reconstituted Board of Education might be (1) to allocate the Parliamentary grant to the provincial education authorities under a definite scheme, the provincial allocation in due course being reported to the Board; (2) to co-ordinate the work of the provincial education authorities ; (3) to consider all larger questions of education affecting the country as a whole, such as the training of teachers, the collecting of statistics at home and abroad, the provision of special reports, and so forth. Possibly the Board might be charged with the duty of promoting educational research, since no responsible body at the present moment is charged with that duty. It would naturally work in close touch with the provincial authorities, taking counsel with them and assisting them where necessary. And, of course, it would advise the Government with regard to finance and new legislation.

Such a scheme would result in a better and more satisfactory division of labour as between central and local authorities. There would be a better balance of power. There would also be a curtailment of unnecessary work. A provincial interest in education would be aroused, which would have a great effect in forming public opinion and hence in influencing Parliament. It would be an elastic scheme, which could be readily adapted to further requirements if necessary. With such a scheme I think that increased local interest would be inevitable.

The Nature and Validity of Subjective Estimates of Intelligence.[1]

BY DAVID W. OATES.

PROGRESS in the development of Intelligence Tests may be sought along two lines—either by refining the methods employed in existing tests or by devising new tests. There is a sufficient variety of tests in use to-day to warrant the suggestion that efforts should be focussed, for some time at least, upon the former of these methods in order that we may have more definite and reliable information regarding deficiencies in existing tests to serve as a guide in the invention of new tests. The main consideration in such a procedure is the criteria to be employed in estimating the validity of a particular test as a whole or of the several elements that constitute the test: it would appear, therefore, that the perfection of criteria is one of the crucial problems.

The most frequently used criterion, in default of any absolute standard of reference, has been the personal estimate of intelligence by the teacher. "There is no standard of comparison," writes Burt,[2] "which can surpass or supersede the considered estimate of an observant teacher, working daily with the individual children over a period of several months or years." It is interesting to set beside this the opinion of Gates.[3] "We secure little or no information about a test by computing correlations with teachers' estimates, which may be good or bad —mediocre in all likelihood—but just which is never known," and the statement by Yule "that to a great extent, and unless they are very carefully controlled, the teachers' judgments are relatively as well as absolutely valueless—*i.e.*, that we cannot attach any great confidence even to the classification of one teacher in a single class."[4] This wide diversity of opinion may well be regarded as a vital issue in any attempt to refine our objective methods of testing intelligence, and it is strange, therefore, that there is comparatively little direct experimental evidence available on the question. The recognition of this fact suggested the investigation, the results of which are here given, the aim of which was to study the nature and validity of teachers' estimates of children's intelligence. For this purpose three kinds of data were assembled :—

(i) Two sets of subjective estimates by teachers.
(ii) The results of three separate group Intelligence Tests.
(iii) The results of the School Examinations.

The subjective estimates were obtained as follows :—

(A) Two hundred and seventy-six boys in a Secondary School, whose ages range from eleven to eighteen years, were placed in five classes according to their native intelligence: five classes were selected, inasmuch as "many teachers profess themselves unable to distinguish more than five or six grades of excellence, especially in moral qualities, and in those for which no special examination is held."[1] Four masters responsible for the teaching in each form placed each boy in the form in one of the classes A, B, C, D, and E, class A being those with the greatest amount of intelligence and so on. In this way four independent judgments on each boy were obtained.

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[1] A paper read to the Educational Section of the British Psychological Society, March 10th, 1924.

[2] "Mental and Scholastic Tests." (King, 1922.) p. 199.

[3] Arthur J. Gates, "The correlations of achievement in School Subjects with Intelligence Tests and other variables." *Journal of Educational Psychology*, XIII—3, p. 129.

[4] G. U. Yule: *Journal of the Royal Statistical Society*, LXXIII, p. 550.

(B) Two masters in each form placed the boys in order of merit for intelligence, thus giving two independent judgments of rank for each boy.

Before making their estimates a meeting of the members of the staff who were to take part in the work was held, and the basis of judgment was discussed. Intelligence, it was suggested, is a very broad function : it is not a single capacity or power but rather an average or composite of many capacities or powers, and it was agreed that the basis for judgment was to be all-round inborn mental ability. The normal frequency distribution in the five groups, as indicated in Figure 1, was emphasized, and stress was laid upon the importance of giving due consideration to the out-of-school activities and practical common-sense, as well as to the relative age of each individual boy in the particular school group or class in which he was working when making their estimate of his intelligence. It would have been more satisfactory to work on large age groups, but it was found impossible to obtain age groups larger than the forms in this school and in daily contact with masters as favourably placed for making the estimates as are the masters in this school. The school groups or classes were, therefore, selected as units for this investigation. It was recognised that the age factor might introduce slight errors into the resulting correlations, but as the school class or form, in which the ages of the boys forming it is fairly constant, was adopted as the unit for calculating all correlations, the age-group condition is fairly well satisfied, and it was thought that any errors from this cause would not, therefore, be sufficiently large to invalidate the conclusions reached. The masters were further asked to eliminate, as far as possible, all such factors as school examination results, degree of effort devoted to work, personality, etc., and to avoid absolutely any discussion of particular boys or interchange of opinions or co-operation in any form. The masters who took part in supplying the estimates had taught the boys they were called upon to judge, for periods varying from two terms in the Lower School to five years in the Upper School. It will therefore be seen that, as far as possible, causes of undue disagreement were eliminated; the teachers had an adequate knowledge of the boys they were called upon to judge ; there was a common understanding of the qualities to be estimated that should avoid varying evaluations of ability or widely different distributions of ability, and at the same time minimise the effects of outstanding personal qualities, or of personal peculiarities, on the estimate of the one general quality under investigation.

In order to compare the teachers' estimates with the results of objective tests of intelligence all the boys were tested by means of Ballard's Chelsea, Columbian and Crichton tests. These tests were selected because they have been used with satisfactory results in testing considerable numbers of English children, their objectivity is satisfactorily established, and two of them, at least, are applicable to a fairly wide range of age groups and endeavour to measure the same functions throughout the range over which they are applied: they appeared, therefore, appropriate for the purpose with which we are now concerned.

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[1] Burt : "The Distribution and Relations of Educational Abilities," p. 50.

The experimental conditions were under careful control: the considerable amount of data presented in this report should, therefore, be sufficiently reliable to enable us to carry out a fairly complete examination of the nature and validity of subjective estimates of intelligence.

EXAMINATION OF DATA (A).

We have now to establish criteria for estimating the validity of the teachers' estimates. I suggest three:

(i) A comparison of the frequency distribution of teachers' estimates with that of the normal curve of distribution of intelligence.
(ii) The extent to which teachers agree in independently placing a boy in one of the five groups.
(iii) The comparison of the teachers' estimates with the results of an objective test of intelligence.

The results of School Examinations will be used later, but this was not definitely included here as a fourth criterion of inborn ability inasmuch as it introduces several other factors—industry, perseverance, and other non-intelligence traits are in many cases determinative of success in examinations. Other objective achievements considered were School Prize Lists and success in athletics. The former was rejected because prizes are awarded mainly on the result of School Examinations, and Prize Lists would, therefore, add no new element. It was found difficult to obtain a satisfactory grading of boys in athletics, and the matter was not pursued as it did not appear to have much significance in the present investigation. Webb,[1] for instance, found such a list to have closest relationship with grading for degree of bodily and mental activity in pursuit of pleasure and fondness for companionship—character qualities with which we are not concerned here.

(i) With what relative frequency should the boys be distributed in the various fifths of the scale, that is, what per cent. of the total group should actually merit A, B, C, D, or E on a normal distribution? Assuming that intelligence is best described by a distribution grouped in five groups, with a range extending from -2.5σ to $+2.5\sigma$, we can calculate the percentage of measures which should be assigned to each group. The distribution of the 1,104 teachers' estimates is compared with the normal distribution in the frequency polygon—Figure 1.

The value of any results obtained by the application of the first criterion is doubtful, inasmuch as the subjects are not a random sample of the population, and will, therefore, not be normally distributed for intelligence.[2] The free-place examination for admission of all scholars to the school cuts off roughly the top fifth of the age group constituted of the candidates competing at the examination. As a result the distribution of the scholars in the Secondary School should be markedly skewed. If the demarcation were perfectly sharp the tail towards the lower groups would be replaced by a vertical ordinate ; a tendency towards a sharp fall in groups C and D may indeed be seen in Figure 1.

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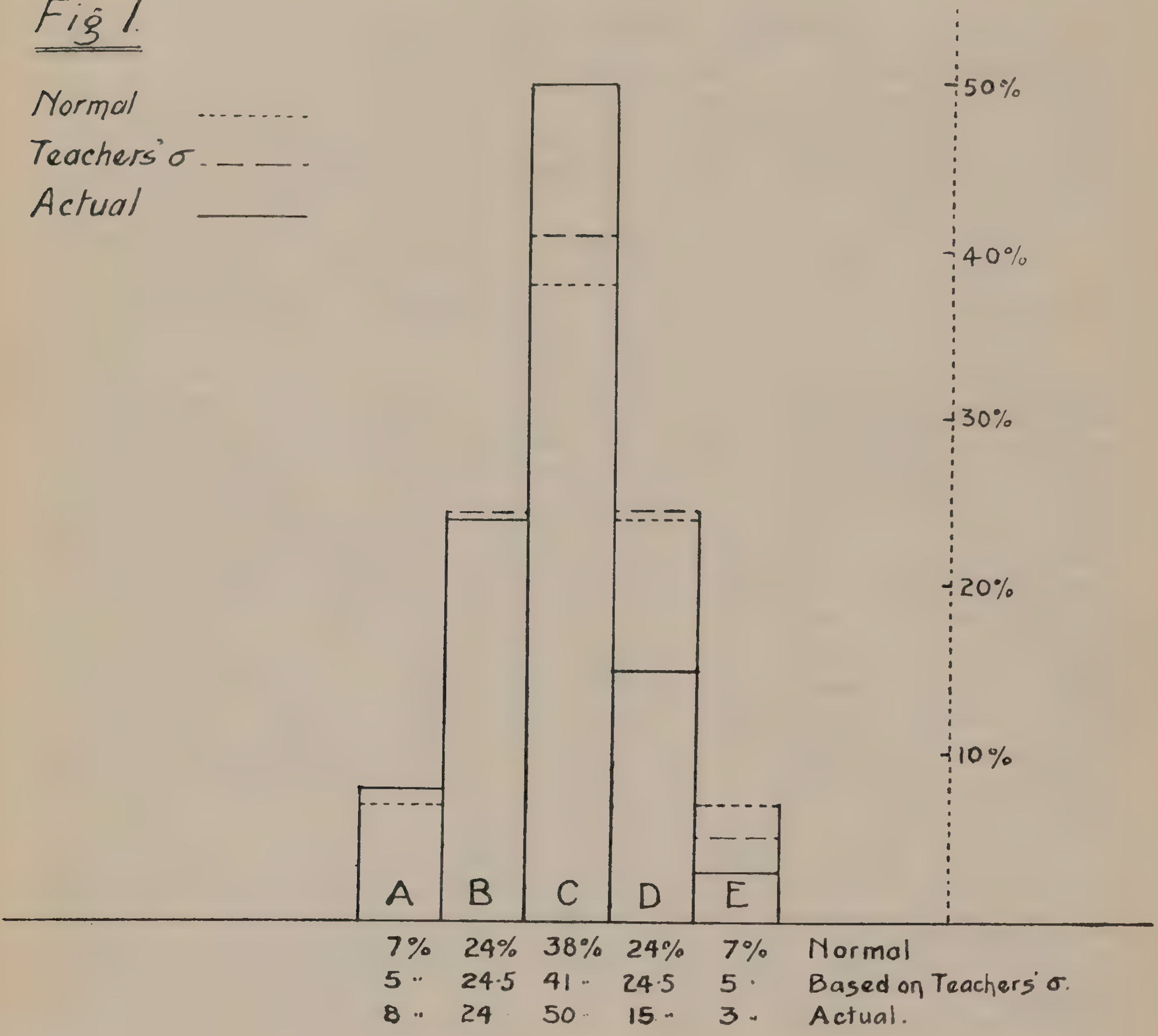
[1] "Character and Intelligence." *British Journal of Psychology*: Monograph Supplements, Vol. I. See Table V.

[2] *Cf.* Burt: "Distribution of Educational Abilities." Appendix II.

It was impossible to determine definitely by subsequent questioning whether the standard of intelligence used by the masters in making their estimates was that of this select group, or a standard, probably lower, of all boys of the same ages. The normal frequency distribution of intelligence had been pointed out to them, and illustrated by Burt's percentages for each of the five classes (7, 24, 38, 24, 7) showing that the numbers in classes A and E, and in classes B and D should roughly balance. The frequency polygon, therefore, appears to indicate mainly the extent to which teachers complied with the instructions and were influenced by the suggestion of the normal frequency distribution. On the other hand, if the teachers' estimates are valid measures, and if we may assume that their knowledge of all boys was equal to their knowledge of the boys in the school, who are drawn presumably from the upper

Fig 1.



portion of the normal distribution of intelligence, the results would indicate that the lower limit determined by the Free-place Examination is not a sharp line of demarcation.

The standard deviation of the results obtained is smaller than the standard deviation of the normal curve. A better test of the normality of the teachers' distribution is obtained, therefore, by constructing a new normal curve or polygon based on the teachers' standard deviation. The normal distribution with a range equal to $\pm 2.5\sigma$, which includes 98.76% of the cases, assigns the percentages to each of the five classes, A, B, C, D, E, as given by Burt. The new normal curve cutting the X axis at $\pm 2.7\sigma$ includes 99.3% of the cases and distributes them over the five classes as follows: 5, 24.5, 41, 24.5, 5. These are incorporated in Figure 1. Though somewhat reduced, there is still a marked bunching in the central class C. We may test this roughly to see whether this difference between the theoretical and observed frequency occurred merely as a fluctuation of sampling. The standard error of sampling σs[1] was calculated and the difference between the theoretical and observed frequencies was found to be considerably in excess of the limit assigned, *i.e.*, $3\sigma s$. We may conclude, therefore, from this rough inspection that the difference is probably due to the influence of a constant cause or causes other than fluctuations in sampling. It is suggested that it is probably due to what has been termed the " central tendency of judgment." The effect of the central tendency indicates that the teachers making the judgments " become adapted to the median value of the series, tend to expect it, and to assimilate all other values towards it."[2] This supports the conclusion reached by Terman[3] that teachers tend to overestimate the intelligence of dull children and to underestimate the intelligence of bright children, probably due, as he suggests, to neglect of the age factor.

The distribution of teachers' estimates obtained in two classes by Terman[4] is shown for purposes of comparison in Figure 2. These distributions are quoted here only to illustrate the effect of this central tendency of judgment and not for comparison with the curve of normal distribution—the standard deviations of Terman's distributions are not given but are obviously decidedly smaller, particularly in Class B. The estimates obtained in this investigation, as will be seen from the two figures, were not influenced to anything like the same extent by this central tendency.

(ii) The central tendency is more fully borne out when we consider the separate estimates for individual boys. Four teachers agree in their estimates in thirty-three cases which fall in the following classes A—2, B—1, C—26, D—4. The two boys placed in class A by four teachers are exceptionally bright boys in the Upper School who have been uniformly outstanding, and have, therefore, been previously discussed by members of the staff: the same circumstances in some degree apply to the four boys placed in class D. It is remarkable, therefore, that the agreements are practically restricted to the median class C. The teachers

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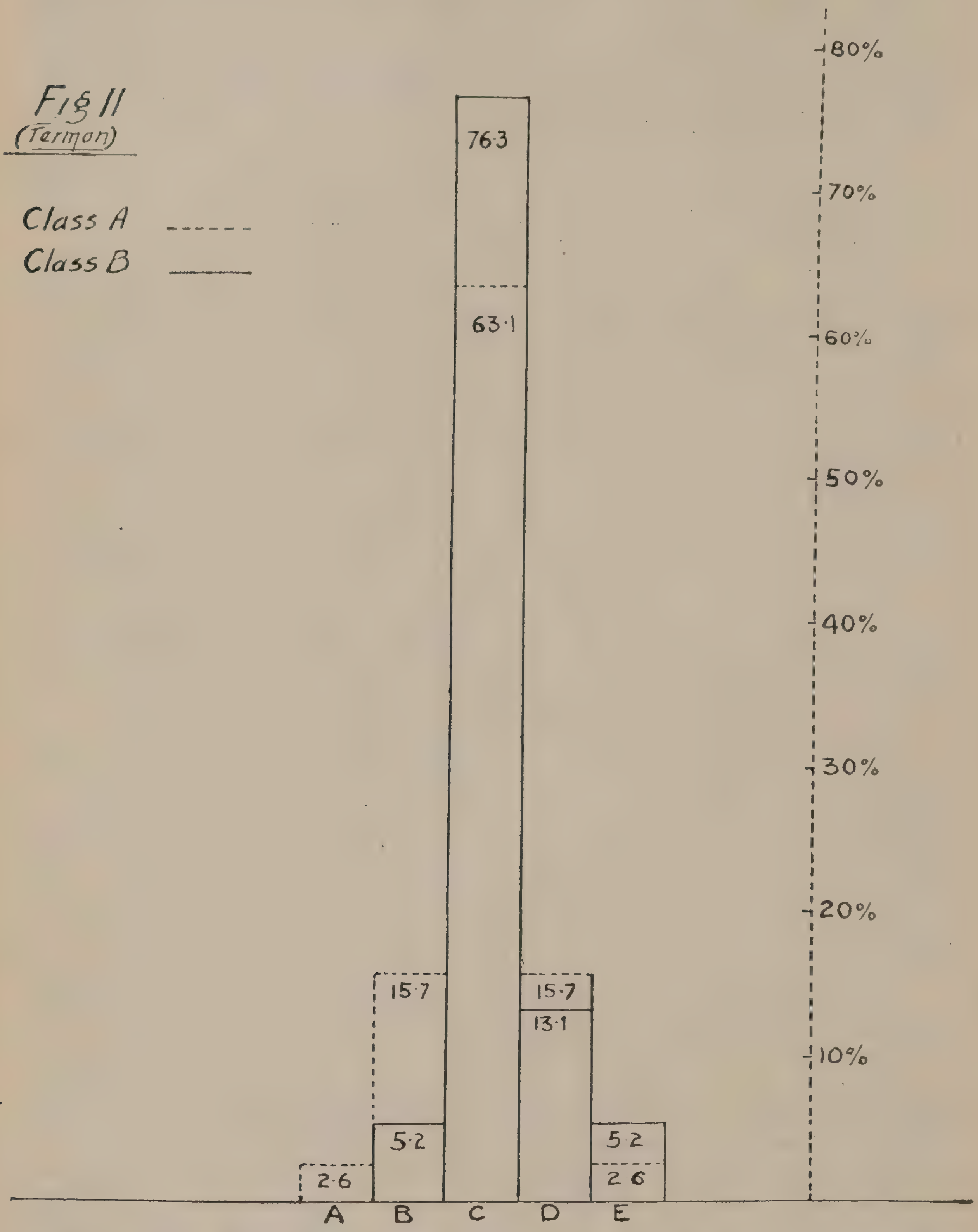
[1] $\sigma s = \frac{f\,(N-f)}{N}$ see Yule, p. 309

[2] H. L. Hollingworth: " Judging Human Character." (Appleton, 1922.) p. 91.

[3] L. M. Terman: " The Measurement of Intelligence." pp. 24, 26. *Cf.* also Binet's study of the methods by which teachers arrive at a judgment of a child's intelligence. Terman: ibid p. 28.

[4] L. M. Terman: " The Intelligence of School Children." p. 71.



place 50% of the boys in class C and agree in twenty-six out of 138 cases: they place 50% in the other four classes and agree in seven out of 138 cases, two of which, at least, may certainly be discounted.

The agreement of teachers with one another is also tested in the examination of data B, where they place boys in rank order for intelligence.

The reliability coefficients were calculated and are given elsewhere Here we are concerned with the agreement in classifying boys on a five-grade scale for intelligence.

The range of variation in the independent estimates is considerable, as is seen in the following table :—

TABLE I.

Numbers and Percentage of Variations in Classification.

		VARIATION.				
	Agree.	By 1 Class.	By 2 Classes.	By 3 Classes.	By 4 Classes.	Total.
Number of boys	33	151	78	13	1	276
Percentage	11.9	54.7	28.3	4.7	0.4	100

These are the extreme variations in the estimates of the four teachers : With four different teachers grading the boys we have six pairs of judgments for comparison, each pair indicating a possible difference in grading. There are, therefore, five other differences in grading for each boy which are not tabulated, nor were they taken into account in finding the average variation, as we are here concerned with the probability of extreme variation in judgment on each boy. In the case of one boy there was a difference of four classes, that is the full range of the scale of groups, and the estimates vary two or more classes in ninety-two cases out of a total of 276 boys. The average variation is 1.27 classes. One cannot escape the conclusion that the estimate of a boy's intelligence by one teacher may fail to place him in his proper class. The probability is that he would be displaced two divisions of a five division scale in two independent ratings, that is, he may be classified as average by one teacher and as brightest or dullest by another teacher.

(iii) Is there any considerable probability that the teachers' estimate will place a boy in his correct class as determined by an objective measure of intelligence ? All the boys were tested with Ballard's Chelsea Test : the results are shown in Table II as percentages of boys in each Quartile in the Intelligence Test placed in each of the five classes A, B, C, D, E, by means of the teachers' estimates.

TABLE II.

Percentage of boys in each Quartile in Chelsea Intelligence Test placed in each of the five classes by Teachers' Estimates of Intelligence.

	A.	B.	C.	D.	E.	Total.
1st Quartile	12.3	30.3	46.4	9.8	1.2	100
2nd ,,	8.4	25.4	50.7	12·3	3.2	100
3rd ,,	9.3	20.5	50.3	15.4	4.5	100
4th ,,	1.9	21.2	52.3	20.8	3.8	100

There is some agreement. A rough approximation of the coefficient of correlation may be obtained by counting boys above and below average in the two series of measurements, constructing a fourfold table, and then using Sheppard's method of Unlike Signs by which r may be obtained directly from Whipple's Table[1]; this gives us $r=.3089$. Terman obtained a correlation of .48 between I.Q. and teachers' rankings on a scale of five grades.[2] We need not discuss this here as correlations will be dealt with more fully in a later section.

In order to determine whether group opinion is more reliable than individual opinion the separate estimates on the five-grade scale were pooled. The marks scored by each boy in the Chelsea and Columbian Tests were also pooled, and the boys were then arranged in five classes for intelligence, the classes being distributed with the same frequency as the distribution of the pooled estimates. Thus if the pooled estimates in a given group yielded 5 A's and 8 B's the five highest boys on the Intelligence Test list for that group were classed A, the next eight in order were classed B, and so on. The individual and the pooled estimates were then compared with the pooled results of Intelligence Tests and by this means the percentages given in Table III were obtained.

TABLE III.

Comparison of Teachers' Estimates with the results of Intelligence Tests.

		VARIATION.			
	Agree.	1 Grade.	2 Grades.	3 Grades.	4 Grades.
Independent Estimates	30.%	47.2%	19.2%	3.27%	.29%
Four Estimates pooled	63.7%	33.6%	2.7%	—	—

The effects of variability in performance of individual children is reduced by taking the scores obtained in the two Intelligence Tests, and the results are, therefore, to some extent, probably a truer index of their intelligence with which to compare the individual and pooled estimates. The percentage of cases in which there is agreement has risen from 30 for independent estimates to 63.7 for four pooled estimates, and the percentage of variation by more than one grade is reduced from 22.76 to 2.7. Assuming the reliability of the Intelligence Tests, the pooled result of four opinions is thus found to be fully twice as reliable as an individual opinion, probably because it is less liable to be influenced by personal bias and superficial characteristics. It is interesting to compare this result with that given by Rugg in his investigation of judgments on other qualities, where he states that the P.E. of a single judgment is $.6745\sigma$ and of four judgments $.34\sigma$.[3]

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[1] *American Journal of Psychology.* XVIII. pp. 322-325.

[2] "The Measurement of Intelligence." p. 75.

[3] H. O. Rugg: "Is the Rating of Human Character Practicable?" *Journal of Educational Psychology.* XIII, 2. p. 83.

It has been suggested that the teachers' estimates tend to be less effective as the pupil grows older[1]. The results of this investigation, which have been worked out for age groups, lends some support to this statement, as the following Table shows :—

TABLE IV.

Percentage of cases of agreement between Teachers' Estimates pooled and the result of Intelligence Tests.

12. to 12.11 years	60.9%
13. to 13.11 ,,	63.3%
14. to 14.11 ,,	72.7%
15. to 15.11 ,,	60%
16. to 16.11 ,,	24.4%
17. to 17.11 ,,	42.8%

It would appear from this table that the teachers' estimates are increasingly reliable up to the age of fourteen years, but that they are decidedly less dependable for the age groups sixteen and seventeen years. The teachers' estimates in the Upper School yielded three out of the four highest reliability coefficients in the whole school. It is suggested, therefore, that the intelligence tests used were less appropriate for boys sixteen and seventeen years of age than they were for boys of fourteen, and that this may account in part for the decline. It is interesting in this connection to note the correlations between Tests and Teachers' Estimates quoted by Burt[2]: if we neglect the ages below six, as he suggests, as they afford but rude approximations, the two lowest coefficients of correlation with the Binet-Simon Tests are found in the two highest age groups, thirteen to fourteen and fourteen to fifteen, and similarly the coefficient of correlation with the Reasoning Tests declines in the groups from eleven to thirteen years.

EXAMINATION OF DATA (B) ESTIMATES OF RANK ORDER.

The reliability coefficients obtained from independent estimates in rank order, made by two different masters, were, with two exceptions, high.

Form	IIB.	IIA.	IIIB.	IIIA.	IVB.	IVA.	R.	VB.	VA.	VI.
Coefficient of Reliability	.69	.70	.83	.48	.69	.67	.77	.26	.72	.85

The low coefficients in Forms IIIA and VB are worthy of note. No teacher prepared estimates in more than two forms, and in every case the two rankings chosen for comparison were those of the teachers who had had most teaching experience of the boys in the particular form. The same master prepared estimates in each of these two forms, and his standard of judgment for some unknown reason differed widely in particular cases from that of the other two teachers who prepared estimates in these two forms. The low correlations here found cannot be attributed to inequalities in equipment and experience of the two teachers, or to very wide differences in the conception of the functions they were endeavouring to estimate, but are probably due to individual variability of judgment. The reliability coefficients, with the exception of these two cases, are in close agreement with those obtained by Burt, .89 in

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[1] Report on Paper by J. P. Tomlinson on "Intelligence Tests in City, Urban, and Rural Schools." *Times Educational Supplement,* February 16, 1924.

[2] "Mental and Scholastic Tests," Table XXX, p. 200.

Elementary Schools and .81 in Special (M.D.) Schools,[1] and again, .88 in an Elementary School and .91 in a Preparatory School,[2] particularly when we note his remark in connection with the latter pair quoted, that these coefficients were probably a little too high, inasmuch as the teachers responsible for drawing up the lists were more or less aware of the official school class order and the estimates were to that extent not independent estimates.

(*a*) COMPARISON WITH THE RESULTS OF SCHOOL EXAMINATIONS.

The two estimates in rank order by different masters were then incorporated into a composite estimate, each respective measure in the two separate estimates being given equal weight. The correlations with marks obtained in the School Examination, and with the scores in the three intelligence tests, were calculated, and are given in Table V. The method of rank differences squared[3] with the correction calculated by Pearson[4] was used as being applicable to the material in hand. The coefficients have not been corrected for attenuation as we are interested at the moment only in the relationships which exist in the data before us.

TABLE V.

Showing Correlation of composite Teachers' Estimate with Marks in School Examination and Intelligence Tests.

Form.	No. of Boys.	Reliability Coefficient.	School Examination.	Chelsea Test.	Columbian.	Crichton Test.
IIB	28	.69	.76 (.054)	.32 (.107)	.34 (.112)	—
IIA	30	.70	.81 (.041)	.62 (.075)	.64 (.072)	—
IIIB	29	.83	.78 (.047)	.23 (.118)	.19 (.12)	.24 (.118)
IIIA	30	.48	.55 (.085)	.27 (.113)	.27 (.113)	.03 (.122)
IVB	26	.69	.61 (.082)	.31 (.119)	−.13 (.128)	−.32 (.118)
IVA	30	.67	.90 (.022)	.48 (.094)	.71 (.060)	.53 (.087)
R	28	.77	85 (.035)	.49 (.096)	.47 (.099)	.42 (.101)
VB	28	.26	.29 (.116)	.41 (.105)	.31 (.114)	.02 (.126)
VA	29	.73	.86 (.032)	.48 (.094)	.52 (.091)	.57 (.084)
VI	8	.85	.93 (.031)	.20 (.228)	—	.74 (.107)

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[1] "Mental and Scholastic Tests," p. 201.

[2] "Experimental Tests of General Intelligence." *British Journal of Psychology*, III, p. 112.

[3] $\rho = 1 - \frac{6\Sigma(d^2)}{N(N^2-1)}$

[4] $r = 2 \sin \frac{(\pi)}{(6\rho)}$

In eight of the ten forms the coefficients of correlation between the composite estimate and success in School Examinations is higher than the reliability coefficient of the two teachers' estimates. It was impossible to eliminate the teachers' knowledge of a boy's weekly work in class, but the estimates of intelligence were obtained near the end of a term, the week before the School Examinations commenced, to avoid as far as possible the influence that recent knowledge of the position of a boy on the examination list would exercise upon the judgment of the teachers making the estimate. The close relationship is, therefore, the more remarkable.

The correlation coefficients of the teachers' separate estimates with examination results were worked out, and are given in the following table :—

TABLE VI.

Showing the correlation of separate Estimates with Results of the School Examinations.

Form	IIB.	IIA.	IIIB.	IIIA.	IVB.	IVA.	R.	VB.	VA.	VI.
Teacher A	.77	.76	.78	.41	.56	.80	.79	.29	.75	.85
Teacher B	.59	.76	.76	.58	.69	.93	.81	.17	.82	.93
Reliability of the two Estimates	.69	.70	.83	.48	.69	.67	.77	.26	.73	.85

Out of twenty coefficients, which are uniformly high, twelve are higher than the reliability of the two estimates, two are the same, and six are lower. The results obtained are in close agreement with the coefficients of correlation obtained by Pearson (.70),[1] Gilby (.686),[2] Waite (.686),[3] and Reaney (.62, .55, and .52),[4] and give support to Abelson's conclusion that " there is every reason to believe that the teachers, in spite of themselves, were biassed by the scholastic progress made by the children when drawing up their estimates."[5] Are we to regard the reliability coefficients of the teachers' estimates as largely spurious because, inasfar as they were biassed by scholastic progress, they were not based on completely independent judgments, or are we to agree with Reaney that " the correlation coefficients between the teachers' estimates and examination marks are sufficiently high to lead to the conclusion that this method of estimating intelligence is very reliable ?"[6] In general, so far as can be determined, from the coefficients of correlation before us we may say that Teachers' Estimates of intelligence and School Examinations appear to measure the same thing, and even an examination of individual cases brings no very distinct differences in the measures to light. But we do not deduce Reaney's conclusion from this fact. The School Examination, which involves the functioning of many factors other than native intelligence, such as a pupil's industry and ability to retain what has been crammed up for the occasion and to make good use of it, may, and often does, fail to test effectively genuine intellectual ability. The close agreement, in our judgment, rather tends to reveal one of the sources of a teacher's weakness as a judge of intelligence in his aptness to base his decisions on academic material and to set up school achievement as his standard of mentality.

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[1] " On the Value of the Teacher's Opinions of the General Intelligence of School Children," Biometrika VII, page 542.

[2] " On the Significance of the Teacher's Appreciation of General Intelligence." *Ibid.* VII, p. 94.

[3] " The Teacher's Estimate of the General Intelligence of Children." *Ibid.* VIII, p. 79.

[4] " The Correlation between General Intelligence and Play Ability." *British Journal of Psychology*, VII, p. 230.

[5] " Measurement of Mental Ability of Backward Children." *British Journal of Psychology*, IV, p. 307.

[6] *Ibid.*

(*b*) COMPARISON WITH OBJECTIVE MEASUREMENTS OF INTELLIGENCE.

The relative results of the three separate Intelligence Tests do not particularly interest us here, but will be more fully considered in connection with another investigation. The uniformly high correlations in the Remove Form are perhaps not surprising, inasmuch as it is a somewhat heterogeneous group of boys of more widely different ages than is found in any other form, as this particular form is constituted of older boys who will shortly be leaving, and younger boys who, for educational reasons, need a year's delay before receiving further promotion. There is higher correlation between teachers' estimates and intelligence test results in the form A, composed of the brighter, more intelligent boys in the case of parallel forms, in thirteen out of fifteen cases, and the form in which these two exceptions occur is one of the two dealt with above in which the reliability of the teachers' estimates is low.

The P.E. of the coefficients of correlations is given in this table. Nine out of ten of the correlations of Estimates with Examinations are well above the required standard, whereas in the case of the Intelligence Tests only sixteen out of twenty-seven reach the required standard for significance. A class of boys in a Secondary School is probably one of the most homogeneous school groups it would be possible to find ; it is not very surprising, therefore, that the correlations obtained are comparatively low. But bearing in mind the important fact regarding the ratio of a correlation coefficient to its probable error as an indication of the validity or invalidity of the coefficient emphasized in a recent issue of the Journal of this Society,[1] it will be well for us to note the degree of variation in the coefficients themselves in the ten different groups under identical test conditions. The correlation coefficients of Teachers' Estimates with School Examinations are uniformly high ; with the one exception, where it is .29, they vary from .55 to .93. In the Intelligence Tests there is a much wider range of variation ; with Chelsea Test from .20 to .62, with Columbian Test from $-.13$ to .71, and with Crichton from $-.32$ to .74. From these facts it may be further inferred that the teachers' gradings for intelligence were not based on intelligence alone. The Intelligence Tests used in the different groups were identical in principle and material, and they are sufficiently constant in the steadiness of responses and in the distribution of successes and failures from group to group. The variations here noted, therefore, probably indicate the varying extent to which factors other than intelligence determined the teachers' gradings : the most constant factor apparently was school progress, or such efficiency as is measured by school tests.

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[1] "Vocational tests and typewriting." B. Muscio and S. C. M. Sowton. *British Journal of Psychology*, XIII, pp. 359-61.

Again, it may be argued that the low correlation of teachers' estimates and Intelligence Tests is due to the fact that the results of the tests used are simply the total marks gained and not an I.Q., which also takes account of age. In order to test this the averages obtained in the tests were plotted against the ages of the boys tested ; on this basis an I.Q. was calculated which ranged from .65 to 1.24 and was apparently satisfactory so far as distribution is concerned. The correlation of intelligence based on I.Q. with estimates was then worked out and gave the coefficients .30, .77, .17, – .04, – .59, .17, .39, .30, .48 respectively in the different groups. In nine out of the ten groups the coefficient is decidedly lower than the one previously obtained before allowance was made for age and an I.Q. calculated. It appears, therefore, that age counts for little in the teachers' estimates of intelligence.[1]

In view of the fact that correlation coefficients do not necessarily indicate identity of functions only, a further procedure first introduced by Webb[2] was applied and the correlations of the correlations given in Table V were worked out. The results are given in Table VII in the hope that they might furnish some further information regarding the nature of the methods of measurement, as random errors in the original estimates do not constitute any bias on the correlations between columns of intercorrelations.

TABLE VII.

Showing the correlations of the correlations given in Table V.

	Columbian.	Crichton.	School Examinations.	Teachers' Estimates.	Chelsea.
Columbian Test	—	.90	.76	.07	.86
Crichton Test	.90	—	.89	.59	.07
School Examinations	.76	.89	—	.68	.16
Teachers' Estimates	.07	.59	.68	—	–.21
Chelsea Test	.86	.07	.16	–.21	—

The teachers' estimates are again more closely associated with success in school examinations than with one of the other measures. They also have closer association with the results of the Crichton Test than with the others, but this is more apparent in Table V in the higher Forms VI, VA, and IVA. As is to be expected, the Chelsea and Columbian tests are closely associated, but there is remarkable difference between the Chelsea and Columbian tests in correlations with the Crichton test.

(c) EXAMINATION OF DATA BY MEANS OF PARTIAL CORRELATION COEFFICIENTS.

The Teachers' Estimates, as is already shown, agree very closely with success in School Examinations, but agreement in results is not necessarily a proof of validity of measurement. The two may be perfectly reliable and yet not measure the same mental qualities, or the qualities that we would have them measure. We want more definite knowledge of how far these three variables measure the same group of abilities, and to what extent any one of them constitutes a measure of a distinct ability or group of abilities. In order to test our conclusions further the method of partial correlations[1] was adopted. For this purpose the results in three forms distributed over the lower, middle, and upper school, in which all coefficients of correlation of both Teachers' Estimates and the results of School Examinations with each of the Intelligence Tests and with each other were significant, were selected. The results of the three separate Intelligence Tests were pooled, and when correlations were calculated the following results were obtained :—

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[1] *Cf.* H. G. Jones : "On the value of the teacher's opinion of the Intelligence of School Children." *Biometrika*, VII, p. 546, who arrives at the same conclusion.

[2] "Character and Intelligence." *British Journal of Psychology*, Monograph Supplements. Vol. I, No. 3, p. 31.

TABLE VIII.

Form	IIA.	R.	VA.	Average
1. Teachers' Estimates and School Examinations	.812 (.041)	.853 (.035)	.860 (.032)	.842
2. Teachers' Estimates and Intelligence Tests	.629 (.074)	.459 (.104)	.526 (.090)	.538
3. Intelligence Tests and School Examinations	.384 (.104)	.576 (.084)	.558 (.086)	.506

When the partial correlations were calculated the following coefficients were obtained :—

Form	IIA	R.	VA.	Average
1. Teachers' Estimates and School Examinations—Tests constant	.796	.812	.804	.804
2. Teachers' Estimates and Intelligence Tests — School Examinations constant	.588	−.073	.109	.208
3. Intelligence Tests and School Examinations—Teachers' Estimates constant	−.280	.399	.245	.121

The reduction of the correlations of Teachers' Estimates and Examination success by only .016, .041 and .056 respectively, or an average reduction of .038 in a coefficient of .842, by the elimination of Intelligence Tests, is significant in coefficients of this magnitude, and clearly indicates that the correlation between these two measures is almost entirely due to the fact that intelligence as judged by teachers and ability as measured by School Examinations are practically identical.

When we eliminate School Examinations the correlation of Teachers' Estimates and Intelligence Tests is reduced by .041, .532, and .417 respectively, or an average reduction of .330 on a coefficient of .538, and

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[1] $$r_{12.3} = \frac{r_{12} - r_{13}.r_{23}}{(1 - r_{13}^2)^{\frac{1}{2}} (1 - r_{23}^2)^{\frac{1}{2}}}$$

similarly when Teachers' Estimates is eliminated the correlation of Intelligence Tests and School Examinations is reduced by .664, .177, and .313 respectively, or an average reduction of .385 on a coefficient of .506. These results appear to indicate that the objective tests very largely measure an ability or group of abilities not measured by the other two means.

These results thus give further confirmation of our conclusion. When the effect of such general intelligence as is measured by Ballard's three tests is eliminated, there is no material change in the correlation between Teachers' Estimates and success in School Examinations, but on the other hand when we in turn eliminate factors, which are apparently common to these two measures[1], there is very little relationship between either of these and intelligence as objectively measured by the tests used. Indirectly, school examinations do undoubtedly measure certain moral qualities, such as perseverance, industry, determination, and concentration, and these are factors which, though they probably play a considerable part in influencing a teacher's estimate of a boy, may, with equal probability, not be measured by the particular Intelligence Tests used. Further, examinations are by no means perfect instruments for determining the standard of ability of a boy, for they are tests only of such ability as can be exercised within the limitations of the particular circumstances. Is it possible that the objective tests do measure a general intellective factor " *g* " but that this is not, as Maxwell Garnett[2] suggests, a measure of " general intelligence " as ordinarily understood or imputed by teachers ?

THE POSSIBILITY OF IMPROVING RATING SCALES FOR SUBJECTIVE ESTIMATES OF INTELLIGENCE.

A suggestion which arose as the result of a Seminar conducted by Prof. Walter Dill Scott at the Carnegie Institute of Technology[3] for the development of rating scales seemed worthy of a trial. The weakness of a rating scale, it was argued, lay in the fact that each individual judged was compared with nothing external. The process of rating, it was

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[1] NOTE.—There is a danger in deducing the presence of common factors in variables on account of the correlation they manifest. We may, however, test these cases for common factors by applying the test conditions set out by J. R. Thompson (*British Journal of Psychology*, 1919, IX, p. 335). According to this criterion if the quantity

$$r_{xy}^2+r_{yz}^2+r_{zx}^2+2\ r_{xy}.\ r_{yz}.\ r_{zx}.$$

is indisputably greater than unity then some general factor may be postulated with certainty (W. Brown and Godfrey H. Thomson : " The Essentials of Mental Measurement." (Cambridge, 1921.) p. 142).

In these three cases

$$r_{xy}^2+r_{yz}^2+r_{yz}^2+2\,r_{xy}.\,r_{yz}.\,r_{zx}=\begin{cases}1.5948,\ i.e.,\ >1.\\ 1.7208,\ i.e.,\ >1.\\ 1.8332,\ i.e.,\ >1.\end{cases}$$

We may conclude, therefore, that there are factors common to the three variables and the deduction here drawn is a valid one.

[2] " Education and World Citizenship." (Cambridge University Press, 1921.) p. 127.

[3] See " Is the Rating of Human Character Practicable ? " H. Rugg. *Journal of Educational Psychology*, XII, 8, p. 427.

believed, might be taken out of the realm of the "subjective" and be given a scientific standing by being made "objective" if you chose "the best man you ever knew" and wrote his name at the top of the scale, and proceeded in a similar way to fix as scale-men "the poorest man you ever knew," "an average man," "a better than average man," and a "worse than average man." You then simply compared your man to be rated with each of these five men and thus determined his place on the scale. The original plan appears to possess an inherent weakness: the fixing of "the best man," etc., is purely subjective, and unless he is a present reality his magnitude will tend to be a fluctuating quantity and will have little significance as an objective standard. In this investigation, therefore, the teachers who had previously placed the boys in relative order agreed upon the best boy, the worst boy, a better than average boy, and a worse than average boy, the two latter being placed as eleven and twenty respectively in a form of thirty boys. Independent lists were then prepared on this basis of judgment by two teachers in each of four forms and the correlations were calculated with results given in Table IX.

TABLE IX.

Correlation of two Teachers' Estimates.

Form	IIB.	IIA.	IIIB.	IIIA.	Average.
By first method	.69	.70	.83	.48	.67
By second method	.72	.71	.79	.60	.70

In three out of the four forms there is closer agreement between the two estimates, particularly in Form IIIA, where the coefficient was previously low, and the average coefficient in the four forms has risen from .67 to .70. It is difficult to say, however, on this limited data whether the increased coefficient is due to anything more than can be attributed to the agreement upon four boys—probably not. In actual practice it was found that teachers making the estimates experienced some difficulty, for instance, in placing nine boys between numbers twenty and thirty on the scale, and at first in a couple of cases suggested eleven boys below number twenty-one and six boys between numbers eleven and twenty. The validity and reliability of this suggested method have not yet been determined experimentally. The results of this very limited application of the principle suggest the desirability of testing the procedure more thoroughly.

CONCLUSIONS.

From the results of the present investigation the following facts are evident, and the resulting conclusions seem to be warranted.

1. Independent estimates of intelligence vary widely, even when systematic errors due to teachers taking widely different points of view have been eliminated as far as possible. In this method of judging by general impression diversity of judgment may be accounted for by the complexity of the qualities judged. Each teacher, consciously or unconsciously, makes his own analysis of the various factors as he

conceives them, weighs each of them according to his own scale of values, and sums up his opinions by means of a mark or grade. A teacher's single estimate of grade in a five-grade scale of intelligence will very frequently fail to place a boy in his proper grade. This supports Lindsay's conclusion[1].

2. The final rating of a pupil on a scale for intelligence should, when possible, be the average of several independent ratings. Four times the number of individual judgments doubles the reliability of the resulting average ; there would thus be reasonable probability that the average, or pooled result, of four independent judgments would place a pupil in his correct grade for intelligence.

3. The three methods—(i) Teachers' Estimates, (ii) group Intelligence Test, and (iii) School Examinations—do not measure the same group of abilities. A study of the interrelations of the three measures points to the following :—

(*a*) There is a very distinct tendency for differences in ability to be similarly measured by (i) and (iii), that is, (i) and (iii) have much in common that is not included in (ii). The more perfect the measure of intelligence the less likely is it to give a high correlation with school success, for the reason that such success is not quantitatively coterminous with intelligence, but with intelligence in conjunction with other human factors which cannot be evaluated by tests of the type now in use.

(*b*) Subjective estimates are based on factors other than native intelligence alone. The qualities—probably mainly qualities of character and temperament—involved in the Teachers' Estimates coincide more closely with those underlying success in School Examinations than they do with those involved in the performance of the particular Intelligence Tests used. The partial correlations bring out this point very clearly. The main significance of these results apparently is that Teachers' Estimates and Intelligence Tests are testing something different. If they are both measuring general intelligence then we must concede the possibility of admitting that general intelligence is capable of being split up into different kinds of intelligence, as has already been suggested, for instance by Thorndike[2], or we must decide definitely that one of them is not measuring mainly general intelligence. The latter appears to be the more acceptable view in the light of what this investigation has revealed, and we therefore conclude that Teachers' Estimates are not a reliable measure of general intelligence as general intelligence is usually conceived by investigators.

4. We must be careful to define precisely what any particular test attempts to measure, and this will determine the appropriate criterion which should be used in any endeavour to estimate its validity as a method of measurement. A particular test may be declared valuable when judged by one criterion and of indifferent value or definitely useless

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[1] E. E. Lindsay : "Personal Judgments." *Journal of Educational Psychology*, XII, p. 415.

[2] E. L. Thorndike : "Intelligence and its Uses." *Harper's Magazine*, January, 1920.

when judged by another criterion. The classification of estimates or tests is, therefore, of little value apart from a definite statement of the criterion applied. Judged by the criterion of school progress the subjective estimates are of distinct value, but judged by the criterion of the Intelligence Tests applied they are of decidedly less value.

Our results agree closely with the results of the three investigations on teachers' estimates to which reference has been made, but unfortunately in these cases there was no attempt to measure intelligence objectively. From the high correlations with School Examinations obtained it was argued that the Teachers' Estimates were of distinct practical value as measures of general intelligence. The Teachers' Estimate undoubtedly has very definite significance as a measure of a pupil's examinational value, but it cannot be accepted without question that this is the same thing as that general intelligence which our numerous tests are seeking to evaluate. The high reliability coefficients of the teachers' estimates indicate that the teachers did not differ very widely in their conception of the quality to be judged. Thus if A in judging quality X really based his judgment upon (X+a) and B similarly based his judgment upon (X+b), the added consideration a and b due to their different points of view would reduce the amount of the coefficient obtained, but such coefficient would hold good for whatever the estimates have in common; the coefficients, however, are almost uniformly high. It seems probable that A really estimated (G+E+a), G being General Intelligence, E Examination ability, and a the bias due to the personal point of view, and similarly B really estimated (G+E+b), and, further, that E was the factor that contributed most consistently to the high reliability coefficients obtained.

The significant fact is that success in School Examinations is almost completely measured by Teachers' Estimates of intelligence, but neither of these indicates general intelligence as measured by group tests to any very marked degree. The need for tests of conative capacity and other character qualities is clear. Until some objective means of measurement of these qualities is devised, written examinations and teachers' estimates should be supplemented by Intelligence Tests for such purposes as the selection of scholars for higher education and even for purposes of grading scholars within the school if our methods are to possess as full prognostic value as possible.

5. Investigators in the field of intelligence testing in the past, almost without exception, have used subjective estimates of intelligence as their criterion to the comparative exclusion of any other criterion. As a result of this investigation it is suggested that in our efforts to refine existing tests of intelligence we need to search for, and experiment with, other criteria, such as the one recently suggested by Chapman[1] and used by Chapman and Dale. " What is required is a method of discrimination other than by personal judgment, of the relative weight to be placed on the separate factors of intellect and training in the different elements of a test."[2]

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[1] J. C. Chapman: " An additional criterion for the selection of the elements of Mental Tests." *Journal of Educational Psychology*, XII, 4, pp. 232-234.

[2] J. C. Chapman and A. B. Dale: " A Further Criterion for the selection of Mental Test Elements." *Journal of Educational Psychology*, XIII, 5, p. 267.

6. Practical devices for the improvement of estimates by teachers of the capacities of pupils are as yet undeveloped. If they can be rendered somewhat more objective and placed on a more scientific basis they give promise of usefulness, particularly in evaluating volitional, emotional, and other non-intelligence traits, for which there are as yet no objective methods of measurement. By the extension of the possibilities of rating scales, personal judgment may be made a more useful and reliable instrument both as a means of independent measurement and as a criterion of the value of purely objective Intelligence Tests.

Compare with this Burt writing of " Scales " in another connection : " To the verdicts even of the shrewdest judge the method may have something to contribute : for without such a method we possess in educational measurement no personal equations—no formula measuring the estimate of one teacher against the estimate of a different. The lack is crucial."[1]

The writer desires to express his thanks to Professor Valentine, Dr. Burt, and Dr. Ballard for their kindness in reading the typoscript of this article, and for their valuable comments.

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[1] " Mental and Scholastic Tests," p. 261.

History in Elementary Schools.

By G. F. BRIDGE.

It seems curious that in the floods of speech and writing about education daily poured out in every possible form, scarcely an attempt is ever made to estimate the actual results of the teaching of subjects in schools. To frame any such estimates is no doubt extremely difficult, and certainly any estimate which could be put into words would be defective, because much of the best results of class-room work can never be assessed or formulated; for these results consist, not in capacities or knowledge of which outward evidence can be given, but in general alertness, openness of mind, and in the whole make-up of the spiritual and intellectual man. Yet the impossibility of gauging the whole surely should not prevent us from attempting to estimate the value of what can be valued, which in the case of most subjects is a very large part of the whole. If, for instance, the results of the study of a subject in schools seem from the reports of examiners to be mainly a confusion and welter of ideas, and very little genuine knowledge, we can hardly be wrong in suspecting that the teaching of that subject stands in need of reform.

It is the fashion no doubt in higher pedagogic circles to belittle examinations and to maintain that they form no true test of the results of teaching. An imperfect test they may be, especially where human subjects such as history are concerned, but they are at all events the principal means by which the public has any chance of discovering the outcome of the teaching given in schools, and by which some extravagant theories of education much in vogue at the present day can be tested. Almost the only light, so far as the public is concerned, thrown on the results of the teaching of history and geography in elementary schools is cast by the reports of the examiners for Supplementary Junior County Scholarships held by the London County Council and other publications of the same kind. Whoever wants facts, and not theories, about this teaching may be advised to read these reports.

For several years now questions on history and geography have been set at these examinations, and the examiners' reports have been published at length.[1] Considering that the reputation of London elementary schools will not be enhanced by these documents, one can but admire the candour and straightforwardness of the London Education Committee in allowing them to be published. It could be wished that anyone who proposes to speak on the teaching of humane subjects in schools could be compelled to read them. Only in forming a judgment based on them, it will be fair to remember that the candidates for Supplementary Scholarships are not the cream of the schools, which has already been skimmed off by other examinations.

The following are a few typical extracts from the reports:

(1) "The general impression by the answers to these questions is that 'history' exists in the minds of the candidates as a series of interesting but nebulous, unconnected and inaccurately remembered

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[1] P. S. King and Co. 9d. each.

anecdotes. The story of Drake referred to by all the Examiners is a case in point."—*Chief Examiner's Report*, 1920-1.

(2) "The answers to the geography questions were simply bad. . . The great majority betrayed either sheer ignorance or a hopeless muddle of ideas that was almost worse."—*Ibid.*

(3) "Very few gave the essentials of Magna Carta as a document, but contented themselves with describing the *scene*."—*An Examiner*, 1922.

(4) "Very few candidates indeed showed any clear ideas about the Equator."—*Ibid.*

(5) "*The Wash.* Very few were able to describe its position with any degree of accuracy or say much about it that was strictly relevant. They seemed agreed, however, that in its waters King John not only lost his jewels but his life as well."—*Ibid.*

(6) "Numerous candidates boldly asserted that the battle of Waterloo was fought at Waterloo, London. . . . History appears to be a dead subject to large numbers of girls and boys."—*Ibid.*

Such extracts might be multiplied indefinitely. In one year two of the questions referred to Clive and Joan of Arc, and most examiners agreed that while nearly all candidates knew that Clive in his boyhood climbed a church steeple, very few mentioned the battle of Plassey, and while most said that Joan of Arc rode on a white horse, only a few said anything about the siege of Orleans, though some knew vaguely that she drove the English out of France. Some examiners noted also that the information relating to Queen Elizabeth which had made the deepest impression was that connected with her dress and her favourites. That same year, though it was in the middle of the war, few knew what or where Constantinople was, though, oddly enough, quite a number had some hazy recollection about learned men having been driven out of it. One more item may be added: a question on the Prince of Wales's tour round the Empire produced very poor answers—a fact which shows that elementary school children cannot acquire coherent knowledge of a subject by looking at picture papers and seeing cinemas, or by listening to an odd lesson or two. Picking up is not learning.

It is clear from these reports that history for boys and girls in elementary schools resolves itself into personalities. This is of course perfectly natural. Climbing a steeple is something that grips their minds, because they know what a steeple is and can form some conception of the difficulty and danger of climbing one; but the idea of conquering a country is too far removed from the ordinary range of their thoughts to grip them in the least; such ideas are only imperfectly apprehended, and in the continual struggle for survival amongst the multitude of ideas which are daily tumbled into school children's minds, the new ideas which have no connection with the existing content of the mind are driven out. The absurdities with which these examination scripts teem and the muddle and confusion of thought of which they give evidence are the natural result of the prevailing methods of teaching history and geography, and of the belief, implied by those methods if not actually avowed, that social and political phenomena, which are to a child surpassingly strange and wonderful, can be understood by listening to an isolated lesson, or perhaps a couple of lessons on them. And if these phenomena are not understood, the events to which they gave rise cannot be understood. Magna Carta cannot be comprehended unless the social and political structure of mediæval England is at least in some degree realised, and this is so far beyond the capacity of children that probably the real significance of Magna Carta can never be made intelligible to them, and the utmost any teacher can achieve is the inculcation of a superstitious and unintelligent reverence for a document in the British Museum. The story of Becket cannot be comprehended, unless not merely the ecclesiastical structure but in some degree also the religious convictions of mediæval Europe are realised, and this again is far beyond the capacity of young children. Probably no time is more completely wasted in any schools than that which is spent in teaching elementary school children about Becket. We should do well to leave Magna Carta and Becket alone. Where stories of military conquest, such as those of Clive and Joan of Arc are concerned, other considerations must be borne in mind. Heredity is a mysterious subject, but it can hardly be doubted that receptivity for ideas varies to some extent according to the parentage of the child, and that boys of the upper classes inherit a much greater receptivity for ideas of military conquest than boys of the working class, just as the latter inherit a greater receptivity for ideas about the condition of the poor in former ages and show a much greater interest in such a subject. And while we are on the subject of the intellectual differences between children of different classes—differences which are very real, however much in these democratic days we may pretend to ignore them—it may be remarked that the inferiority of the working class child lies principally in the capacity to learn and understand what is outside the range of his personal observation, the child being in this respect the father to the man, for working-men taken in the mass are probably as intelligent as scholars about what they can see with their own eyes, but far inferior in the ability to think about what they cannot see. Certainly it is quite clear from all the available evidence that while elementary school children are remarkably successful in all constructive work—art, carpentry, writing compositions (see the interesting examples given in the last volume of the L.C.C. Examiners' Reports[1])—and may here compare with children in secondary schools, they fail in *learning*, from speech and books, about matters outside the orbit of their daily lives. Hence it is that teachers are tending to rely more and more on the appeal to the senses and on constructive work, "history," or what is so denominated, being taught not merely by pictures but by hand work, it being found that if boys cannot understand the feudal system, they can at least understand the build of a Norman castle.

But this is a digression. What is to be the remedy for the intellectual ills which these reports describe? The first thing to be quite clear about is that we must make it our first aim in teaching geography and history to give children clear ideas and such as will remain in their heads, and that the amount of information that they acquire is a matter of quite minor importance. For however much they remember it will be no more than a few islets of knowledge standing up in a vast ocean of ignorance. Besides they can add to their knowledge in after life, but unless they acquire the habit of clear thinking in schools, they will probably never acquire it at all. Let us boldly avow our indifference to ignorance. Slightly altering a famous saying of Edmund Burke's, let us assert as a fundamental article of belief that it is no little part of a teacher's wisdom to know how much ignorance must be tolerated. After all, ignorance of most things is the price that we all pay for knowledge of a few things, just as incapacity to do most things is the price we pay for capacity to do a few things. It is only with renunciation, says Goethe, that life begins. The same is true of education and knowledge-getting.

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[1] Also Binns and Macpherson. Forum of Education. Vol. I. No. 1.

The first two conditions requisite for clear thinking are that the subject is presented to the mind for such length of time and so frequently that the mind becomes thoroughly familiar with it, and that the subject is one on which the mind can work. The latter consideration is very important. We assimilate new ideas only imperfectly if we simply receive them into the mind ; what is needed further if they are to become really part of ourselves is the play of thought upon them. But if these two conditions are to be fulfilled we must prune our syllabus ruthlessly. We had better give up the idea of teaching the history of England as a connected whole, for of that connected whole it is difficult to believe that boys and girls of twelve can get any real grip. Nor should they be distracted by being pitchforked one hour into Queen Elizabeth's reign, the next into the geography of Canada, and the third perhaps into Wordsworth's poetry. The principle of distraction on which so much class-room practice nowadays seems based is fatal to success ; we must substitute for it the principle of concentration. The teacher should select a period, or a country, or a subject, and to that period, or country, or subject he should for some weeks devote all the hours assigned to history or geography in the time-table, and in some cases at least add those marked "Literature." Take India for instance. Little that is of value can be learnt about India under present conditions ; two splashes of blood, Plassey and the Mutiny, make up its history, and its geography ends with the export of jute and tea. In the course of his peregrinations as a supervisor of training-college students during school practice, the present writer has heard scores of lessons on India, but he has never heard one on the life of the Indian people, or on the English government of India, or on what the English have done for India. To elementary school children India is the place from which jute and tea come, not the country where we have given peace and order and good government to one-fifth of the earth's population. But how can anything worth knowing about India be learnt in four or six lessons of thirty or forty minutes each ? If we really want boys and girls to know anything about India we should give to the subject four periods a week for at least half a term ; we should teach them first the physical geography of the country, then the material life of the people as the result of it, next their social and religious life, and next how we come to be there, and what we have done and are doing there. As means of instruction we should use the oral lesson books both read aloud and studied in silence, and of course pictures and maps. Children should be carefully questioned on what they have learnt. They should discuss any questions it is possible for them to discuss, and write compositions on topics connected with their lessons. It should by every possible means be driven home to them that they listen and read, so that they may understand and remember, not merely that a passing interest may be excited.

The Board of Education is suggesting to teachers that something of this kind should be done during the continuance of the great Exhibition at Wembley, the British Empire being taken as the subject, to which all the history and geography hours are to be devoted for a considerable period. By this means some clear impressions may be made upon the children's minds. It could be wished that the method should be applied to countries outside the British Empire when the Exhibition is over. Four weeks of intensive work—not less than four periods a week—might really result in the child having some definite ideas and some coherent knowledge about France, or Holland, or Russia. A rather longer period would probably be necessary for the United States, though of course just how long children could pursue the same subject with advantage only experience could decide. The instruction and the reading would embrace geography, a little history, and much about the present life of the people. One mistake that we make is that we try to teach children too much about the past. Boys and girls are not specially interested in learning how the present has grown out of the past, and however much they hear about the process they will never understand it more than very dimly. On the other hand they take a keen interest in the life of the present day and the occupations and habits of their contemporaries in the various countries of the globe. Owing, however, to our unfortunate habit of thinking in subjects this topic is neglected; it is neither history nor geography, but falls between the two stools. It would be well if sometimes the terms "history" and "geography" were deleted from the school time-table and such titles as "Canada," "Egypt," "Discovery and Exploration in the XV and XVI Centuries," "The Colonization of North America," substituted.

No change of method, if even fortified by the introduction of the cinema and wireless telegraphy, will be of any value if we persist in putting before children historical fare which their stomachs cannot digest. And there is really not very much of such fare that boys and girls of eleven and twelve can digest. Of political and constitutional history they can grasp very little, and of religious history only the most superficial aspects are intelligible to them. The whole narrative of events from William the Conqueror to Elizabeth might be dropped without much loss, though some study of the social life of the Middle Ages is valuable for two reasons, first because boys and girls learn thereby that our present industrial civilization is not the only possible form of civilization, and secondly because they will learn something about the ruins of monasteries and castles and the history of famous buildings. Such a study would be arranged round four centres: (1) The castle, with a glance at the Wars of the Roses, (2) the monastery, including the story of the Dissolution, (3) the town, (4) the manor and village, with the story of Wat Tyler's rebellion. To each of these a fortnight, that is, eight lessons, might be given, so that for eight weeks the children would live in the Middle Ages. The stranger the ideas that are presented, the longer the time that they must be kept in front of the mind.

Without attempting to draw up a programme, one may suggest a few headings for periods of intensive study: The history of England up to and including the Norman Conquest, *i.e.*, the making of the Nation ; the struggle of Holland and England against Spain, with such explanation of the Reformation as is possible ; the Conflict of King and Parliament ; England and France in North America ; the Industrial Revolution ; the history of the old Navy ; the French Revolution and Napoleon. The last-named subject receives cruel treatment at present in elementary schools. The heart of the supervisor sinks into his boots when a student tells him that he is to give four lessons on the French Revolution. He knows that no good can be done that way. Possibly the French Revolution is altogether too much for an ordinary class of twelve year olds. But a good class at a central school, devoting four periods a week to the epoch 1789-1815, might really in some weeks get some comprehension of what the Revolution was and of what it has meant to Europe and to humanity.

The teaching of history in both elementary and secondary schools is probably more difficult than the teaching of any other subject in the curriculum, and, do what we will, we can never be certain of achieving the same measure of success with it as with drawing or arithmetic. But at least we might give it a fair chance, and to teach it in the present broken, fragmentary, distracted fashion is not to give it a fair chance.

A Tentative Scale for Measuring the Growth of the Appreciation of Beauty in School Children.

By EDITH NEWCOMB.

THE study of children's compositions on "The Most Beautiful Thing I have ever seen" (reported in the last number of THE FORUM) suggested the possibility of a rough scale of measurement of a child's power to feel and express the appreciation of beauty. In at least three directions the compositions showed steady development from year to year: (1) choice of subject; (2) attention-span; (3) mention of definite elements of beauty.

The *subjects* chosen were very diverse in each age-group, but there was a gradual and fairly regular annual increase in the number of "sublime" subjects, such as the rainbow, sunset, the night sky, grand scenery, etc., and an equally steady decrease in the number of trivial subjects—toys, dress, food, and the like. Between these extremes was a more nearly constant, but slowly decreasing, percentage of flowers, animals, and persons, and a slowly increasing number of gardens, streams, fine buildings, etc. It was easy to recognise five stages of progress, and to allot marks accordingly: 1 for trivial subjects, 2 for flowers, animals, babies, and the like; 3 for gardens, country scenes, parks, houses; 4 for beautiful scenery and fine buildings such as Westminster Abbey; 5 for the sublimer aspects of nature. If any particular subject seemed to belong equally to either of two classes, it was put half-way between them; *e.g.*, a motor-car, which is certainly less trivial than a doll or a cake, was marked 1.5. In the rare cases where the subject was grotesque or actually ugly, the mark was O. As the influence of age was shown in the choice of subject more clearly than in anything else, the marks thus obtained were doubled.

There was a notable difference in the way children of different ages treated the same subject, and this difference seemed to correspond with growth of the *attention-span* or span of interest. The youngest children were often content to name the subject, and would spend the rest of the fifteen minutes allotted to them in adding vague remarks, such as "I liked it because it was pretty." Older children described the details of their subject, the eyes, hair, and dress of the doll, the colours of the rainbow, the song and nest of the bird; while still later there was a complex and elaborate description, covering a wider extent of place and time. These three stages were marked respectively 0, 2, 4, and again intermediate stages could be recognised and marked 1 or 3. Concrete examples will make the three stages clearer. One of the few children of seven who chose the sunset wrote as follows: "The prettiest thing I ever saw is the sunset. It is nice, it is the prettiest thing I ever saw and I like the sunset." The same subject was treated by a child of nine: "First there was a line of gold which shone so brightly that it set up all the sea, then there was some red and pink which also shone brightly, and last there was some heliotrope mixed with yellow." For the twelve-year-old, the sunset was the glorifying element making a beautiful scene still lovelier, and changing from moment to moment: "Some years ago, when staying on the borders of Italy and France, not far from Cannes, I witnessed one of the most beautiful sights I have ever seen. We motored up into the Alps and in the evening, at about 7-30, when it was drawing towards dusk, looking up, we beheld the sun going down in a golden, fiery ball behind the snow-clad Alps. The snow became a most beautiful orange, fading away into purple and a beautiful shade of green. It looked as if there were three or four sets of foot-hills, all very distinct, leading up to the towering majestic heights of the Alps themselves. Slowly the sun went down leaving everything a lovely purple colour. Then when night came on the stars and the moon came out, giving a fairy light to everything."

There was also a steady increase each year in the percentage of children mentioning definite elements of beauty, especially *colour, glitter or brightness, sound, movement,* and one mark was added for the mention of each of these four.

An additional mark was given for any very strikingly beautiful phrase, apt word or metaphor.

This system of marking gave a rough and ready scale, ranging from 0 to about 20 marks ; a frequency distribution was made of the scores obtained in each age-group, and from this the median and the semi-interquartile distance (Q) were found ; *e.g.*, for the 242 nine-year-olds, the median was 7, and Q 2, showing that about half the cases clustered closely around 7, ranging from 5 to 9 marks. The following table gives the results for each age :—

Age in years.	*Median mark.*	*Q.*	*Number of cases.*
5*	4	1	100
6*	4.5	.5	100
7	5.5	1	200
8	6.5	1.5	156
9	7	2	242
10	8	2	237
11	9	2	252
12	10.5	2.5	238
13	11.5	3	112

A typical composition for each age is given below. It must be remembered that no account was taken of writing, spelling, punctuation, arrangement, and the marks were allotted strictly on the system just explained. Subjects of natural beauty have been selected in each case, as in every age-group these predominated.

AGE 7.

" I think the bluebells are beautiful. because they are very pretty. And I like cowslips because they are yellow."

AGE 8.

" I have seen a beautiful rose tree it had read flowers all over it and it was the most prettys thing I ever thought about."

AGE 9.

" The most beautiful thing I have ever seen was a yellow Hammer I saw it sitting on a branch of an oak tree in a wood it look so beautiful with its yellow beast as it sat on the branch I saw it on Sunday morning when I went a walk I stayed there till it flew away."

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*The children of five and six were questioned orally : " What is the prettiest thing you have ever seen ? "

AGE 10.

" The Most Beautiful Thing I have ever seen was some gold fish in a garden full of flowers and they were all in bloom. All the gold fish was in a nice glass tank and all the trees were hanging over the glass tank. In the garden I saw all kinds of nice flowers and they were all growing up against the tank of gold fish. The fishes were very playful and they were all jumping up."

AGE 11.

" In Cornwall, near a little village called Granpound-road, there were some lovely woods, called the Daffadill woods, with a very wide stream almost as wide as a river. In these woods their were ever so many Daffadills in fact the woods were covered with them in spring time. We used to go and have lovely picknicks their, that is Daddy, Mummy, Tishbhi, and I.

You simply cannt imagein how lovely woods looked, just think, lovely large woods with huge beautiful green trees in them, beautiful long grass, with thick moss under each tree, and best of all the lovely daffadills."

AGE 12.

" When we went to Bognor once in the Spring, we went into a beautiful wood. The trees were bursting their buds, and everywhere was looking fresh and green. The birds were looking for mates and some were building their nests in the trees. The primroses and violets were just coming out and poking their heads out from under the leaves and grass. The fresh spring flowers and grass still wet with dew smelt very nice."

AGE 13.

" One day as I was walking through a meadow, I came to a little lake embedded in the midst of the long juicy grass, and round its edges I saw a group of beautiful white snowdrops.

Their snowy heads were entwined round each other, and they looked as fresh as the morning dew. Round them grew blades of grass which made the flowers look very pretty. The stems were as slender as could be and they were so delicate that they trembled if the wind blew on them. I thought as I passed them I had never seen anything so beautiful in all my life."

These average compositions give no idea of the wide range of difference in each age-group. The lowest of the thirteen-year-olds showed less æsthetic appreciation than the average seven-year-old, and the highest seven surpassed the average thirteen.

Here is an unusually poor production for a girl of thirteen :—

" The most beautiful thing I have ever seen is a ivory fan, it was carved by the natives and it was done beautifully, there must have been plenty work about it. It had plenty little holes in it. It had some American beads at the end of it. It was made in America by the Natives. I do not think I have seen anything so beautiful before."

The following are examples of exceptional merit :—

AGE 7.

" The prettiest thin I ever saw was the see the foam upon it makes it look very very pretty. If you go on the pear you sometimes see fish jump a long in the water. I saw it at Roker. There are nice ships sailing about. The sand looks like silver. Sometimes the see comes write up and sometimes people have got caught whith it."

AGE 8.

"The most beautiful thing I have ever seen is a sunset at sea. With its red, yellow, and glorious rays and the pretty little move and purple clouds floating about the sky. The colours reflecting on the blue waters and the sun with its long ray of yellow or red across the sea, and to see the sea birds flying about. The pebbles too make a lovely picture and you see the ships away near the horizon. It is so peaceful and calm that there is not a sound to be heard except the chirping and singing of the birds. If you go on some hills close by you seem as if you could stay there. Which way you go and turn or whatever I look at, nothing seems so beautiful as a sunset at sea."

AGE 9.

"It was in the Autum, one evening when I was out, and the Sun was sinking fast.

"The Clouds were a bluey purple and the sun was the most beautiful greyish pink.

"The Sun threw the most lovely light on the two woods, which I was standing betwene.

"The grass was such a lovely colour and the path that I was on shone like diamonds, and the little white pebbles like pearls.

"The trees were the most beautiful green I had ever seen and the trunks were a lovely brown."

AGE 10.

"I have seen many beautiful things but the most lovery and wonderful I think is the sea.

"The sea, never still and always mouving now as clear as crystle and then it becomes overcast and the billows, once so blue, become a wirlpool of foaming water. The sea holds many wonders. Far, far down in the subteranail depths of the ocean grow corals of delicate colours such as are never seen on earth, and fish who are called the 'Lighters of the Ocean' as they have phosfer faces. The sea has seen many scenes. As it is never still it is always traverling first it may pass an old village nessling in the hills or a shady desert whose only occupants are a travelling caravan."

AGE 11.

"The sky was like a beautiful design in blue and gold with a little piece of red which was like a ruby. Towards the south were some hills coated with purple heather making them a blaze of colour. The sun had nearly vanished but it was still visible a semi-circle of light which if you looked at it dazed you. The sun tinged the crests of the waves and it seemed to light a golden path right to our very feet. We saw the fishing boats with their brown and grey sails, adding a touch of colour to the scene, setting out for a night's fishing. The seagulls with orange legs and bill and body of gray and white flew over the water or alighted on the shore. The waves seemed to be lulling all things to sleep as they touched the beach like squadrons of cavalry charging against an impregnable position and melting away in the attempt. Just then the sun sank to rest."

AGE 12.

"The thing which I think is the most beautiful I have ever seen is :—One morning when I was on my holidays I went out before it was light and what I saw was very wonderful. The sky turned to a violet hue and long orange-coloured fingers stretched across the sky. Every where was quiet. Gradually the sky turned to a rosy colour and then blue and the sun rose from behind the mountains showing mile after mile of softly undulating country. Little red-roofed farm-houses nestled in between blossom filled orchards. As it was getting later the birds awoke and insects began to hum and chirp. Everywhere was changed. It was a living, happy, rejoicing world, very different from a few hours before."

AGE 13.

"The most beuatiful thing I have ever seen is a waterfall known as the "Grey Mares Tail," it is in Selkirkshire, in Scotland. When I saw it the sun was setting and was shining on the falling water, making the waterfall one sheet of irridescent colour. It flashed almost every shade from a deep purple to a scintillating silver. The waterfall is in three sections : it falls from the top of a lofty rock where it is in the form of a hill stream, onto a projection in the rock wall. Here it divides into two streams close to each other which mingle as they drop sheer a hundred feet onto another projection. Then there is a last drop into a deep pool set among high rocks. A cloud of mist always hovers over this spot, so great is the fall. The three handred feet high rock down which it tumbles is clothed in moss, so that the waterfall resembles a shimmering veil over a green cloak."

An Inquiry into the Teaching of Psychology in Training Colleges.[1]

AN inquiry in reference to the teaching of psychology was sent out to ninety-two Training Colleges and University Education Departments; sixty-three replied.

The following is a summary of the replies:

QUESTION I.

Is the instruction in psychology (1) provided in a separate course or (2) fused with the courses on the principles of education and teaching?

Of the sixty-three colleges replying, thirty-one give separate courses in psychology, and thirty-two fuse the courses with the lectures on education. In the case of University Education Departments, and some Training Colleges where certain students are prepared for a degree course, both conditions are found, the degree students only being given a separate course in psychology.

Apart from this, however, many colleges found it difficult to reply with a simple distinction, since although the courses may be "fused" as regards the formal arrangement of the syllabus, and no part of the lectures labelled "psychology," yet in actual practice there is a definite section of the lectures on education and teaching that is essentially psychological in character. This applies to the majority of the thirty-two colleges which reply "fused." The formal reply to this query does not therefore appear to be so important as the fact that, even where there is no "separate" course in psychology, the subject is yet, in the majority of cases, regarded as (to quote one reply) "the real basis of the Education Course."

QUESTION II.

(*a*) In the case of (1) above what is the ground covered by the course?

Some colleges follow the psychological section of the Syllabus of the Board of Education, either simply, or enriching it in detail and supplementing it in various directions, such as "more child-study" and "the study of unconscious mental processes." The commoner practice, however, is to prepare a syllabus which, while it covers the ground demanded by the Board, is yet more adequate to the systematic presentation of modern genetic and educational psychology.

The following are a few of the syllabuses outlined:—

1. Introductory section to bring home in practical ways the need for psychology; sources and data, nervous system, attention, habit, play, perception, memory and imagination, constructive imagination, ideation and thinking, discipline, McDougall's stages of moral development.

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[1] A report drawn up by the British Psychological Society Committee for Research in Education. We are indebted for the report to the Hon. Secretary of the Committee, Mrs. Susan Isaacs, M.A.

2. Course in Experimental Education, with one-and-a-half hours' practical work per week. Covers the psychology of the learning processes and tests of intelligence, of vocational aptitudes, and of educational attainments.

3. Course in Genetic Psychology.
   a. Innate bases of character (Ribot, McDougall, Drever).
   b. Acquired bases of character-Conative: habits, purpose, choice. Cognitive: interest, presentation; representation (memory, imagination), conception, judgment, reasoning. Feeling: primary and secondary emotions (Shand).
   c. Character: inter-relation of conative, cognitive and feeling aspects of personality. Sentiments; the master-sentiments.
   Experiments on sensation, perception, testimony, imagery, memory, intelligence, thinking, literary appreciation.

4. Course covering:
   a. Educational Psychology.
   Instincts, emotions, will, memory, habit, the "unconscious," play, adolescence.
   b. Child Development.
   Speech. Interests at different stages. Authority, phantasy, fears, dreams, repression. Early thought, ability, promotion, adolescence. Biographical studies.
   c. Experimental Investigations.
      1. Problems of special method; underlying processes of main subjects—measurement—experimental evaluation of methods—diagnosis and correction of faults and weaknesses.
      2. Problems of general method; observation, illustration, memorising, heurism, individual work.
      3. Educational statistics.
      4. Problems of organisation; marking, grading, examining (general intelligence, methods of testing, individual variations); time tables (work curve, etc.).

(*b*) What practical exercises accompany it?

The practical work reported falls into four kinds:—

1. Experimental work of the kind requiring laboratory equipment. This is naturally found only in the case of University Training Departments where there is a psychological laboratory, and only in certain of these.
2. The commonest form of practical work consists of the definite and controlled observation of particular children or groups of children, in relation to the psychological topics discussed, with the taking of notes and subsequent discussion with the tutor, or in class.
3. In many cases practical exercises are carried out by the students on each other throughout the course, experiments dealing with, *e.g.*, attention, association, imagery, memory, fatigue, habit, the psychology of learning, thinking and literary appreciation.

4. In a few cases, some experience in mental testing of children is arranged for, with a view rather to the illustration of general psychology (*e.g.*, the fact of individual differences) than to a training in methods of research.

(*c*) How is it related to the course on the principles of education and teaching?

Almost all replies emphasise a close relation between the teaching in psychology and the lectures on the principles of education, and the training in practical teaching. A study of the syllabuses shows that the psychology taught is mainly educational psychology, or such general psychology as has a direct bearing on educational problems. In many cases the same lecturer is responsible for the two courses. Where this is not so, it is usually reported that the lecturer in education and method assumes a knowledge of psychology and constantly builds upon this. Usually there appear to be constant cross references between the two sets of lectures. One college reports that "every opportunity" is taken during teaching practice of showing how the principles of psychology discovered are exemplified in the problems which school work presents, and the general criticism which follows each day's practice lays special stress on points of psychological importance. One or two correspondents emphasize their view that the psychological bases of education cannot usefully be detached from general psychology, and that the student of education "must not be reduced to rely on detached principles." Only one college reported that there was "no direct connection" between the lectures on psychology and those on method; but even in this case, the lecturer in psychology has had practical school experience and teaches from this standpoint.

QUESTION III.

In the case of I (2) is any provision made for students who wish to carry their study of psychology to a point beyond that reached in the courses on the principles of education and teaching, and what is the general nature of such provisions?

About half the correspondents reply that there is no such provision (for reasons summarised under the next question). A number reply that students are encouraged to undertake independent reading, and that the library is well stocked with important books on psychology. In some cases arrangements are made for special psychological studies in the case of third year students; (*a*) those who are working for a degree, and have the opportunity of attending University lectures and laboratories, and perhaps undertaking a psychological thesis; (*b*) non-degree students; special lectures and seminars may be arranged; and in some cases students choose a psychological topic for their special thesis for Distinction in Education (*e.g.*, comparison of the dreams of town and country children; imagery in relation to the teaching of composition).

Several colleges give every facility to students showing psychological aptitude and interest, even among the two-year group, to go further in the subject than the general lectures. Further reading, seminars dealing with special topics, individual coaching, and the preparation of short theses, are arranged. One or two colleges report that interested students have the opportunity of attending lectures outside the college, *e.g.*, W.E.A. lectures.

QUESTION IV.

What view do you take of the place and value of psychology in the training of teachers (*i.e.*, if you are not satisfied with your present arrangements, in what direction would you desire to modify them ?)

All correspondents are agreed as to the fundamental importance of a training in psychology for practical teachers. Only one is dissentient in any degree ; in this case it is said " psychology is indispensable *inter alia* to teachers who are deeply interested *ex-officio* in the advance of the study. That is so well understood to-day that there is danger that psychology may monopolise their attention, to the neglect of other things which are also indispensable, and some of these are better established than is psychology at present."

A few colleges are satisfied with their present arrangements for the teaching of the subject, and think that all is being done that is necessary.

Others think that all is being done that can be done under present conditions, in view of (*a*) the immaturity and mediocrity of intelligence of the students themselves ; to quote one report, there is " too little psychology for the best students, and too much for the worst," and it is doubtful if the average student gets what would be most valuable for him ; (*b*) the over-crowded time-tables of the Training Colleges. Several correspondents hold that much more could be done with the present type of student if the whole training covered a longer period.

Some correspondents would like psychology to have a larger and more important place in the training, even under existing conditions. A number would wish to alter the Board's Syllabus in this direction, and would like to have a psychological thesis accepted more readily for the Distinction in Education.

As regards details of teaching the subject, three correspondents expressed a wish for a psychological laboratory. The majority, however, agree that this is not necessary or even desirable, since the type of experimental work that has most educational bearing can be successfully carried out without apparatus, and in the school rather than in the laboratory. A number of colleges would wish to give more time to practical work in the subject.

A number of the correspondents in whose colleges the subject is not taught separately would like to have it so arranged ; there are no contrary cases. Many would like to have more " pure psychology " as a systematic basis for method.

The following quotations are of particular interest :—

1. " It is only the teacher whose art has been given a good scientific basis by means of a thorough course of psychology who will continue throughout her career to find well-grounded methods and devices to fit new requirements in her practical work, and so will prove a really progressive and first-rate teacher. Those who lack such preparation or have no taste for psychology almost invariably, in spite of the possession of good ' natural aptitude for teaching,' tend to fall back, after a few years, from the promise of their college days (even before their leaving college the fatal effect of that limitation may be evident) ; and to settle down into

a groove of mechanical methods of teaching and management. Their skill is either uninspired or ungrounded, and they certainly do not give enough study to the individual characteristics of their pupils.

"I should like to see more discriminating means adopted in the selection of candidates for the teaching profession. Perhaps one helpful plan might be to give the Secondary School fifth and sixth forms a test-paper dealing with topics drawn from various humanistic and scientific subjects taken by the pupils, but framed so as to sift out those likely to take a deep and enthusiastic interest in psychology and its applications, and similarly at the other extreme to reject those to whom the psychological aspects of a problem were largely alien. This and kindred tests might be the means of bringing into the Training Colleges and the profession generally more thoughtful and adaptable teachers who would not have reached the limits of their power in a short four or five years. One does not overlook the fact that the successful teacher's interest is predominantly practical, and that some students of very limited depth of knowledge handle classes and individuals really well, and are able to teach effectively nearly all they know. But in these cases, if there is real teaching power, we find also psychological insight which awaits further cultivation and help, from a practical and more scientific study of psychology.

"Whilst the knowledge of many Training College entrants is so meagre that much time within the Two Year Course has to be given to academic subjects, it is difficult or impossible to deal adequately and by the ultimately most satisfactory methods with the student's training in education and psychology. Three years should be the normal minimum length of college training."

2. "It seems impossible, if indeed desirable, to take a complete course of pure psychology with the average two-year student. By taking actual concrete situations from school life and work, and then by analysis and a judicious use of the Socratic method, experiment, and problem work, getting the students to realise the underlying psychological principles and so arousing the spirit of enquiry, seems the most effective."

3. "The answer to this question depends very largely on the type of student under consideration. The more intelligent students appear to be interested in psychology, and go some way towards acquiring a scientific interest in the workings of the human mind, which is, I think, of value. The less intelligent do not seem to understand enough psychology and would perhaps be better if simply taught the findings of psychology as methods of teaching. On the whole I should say there was too little psychology taught for the best students and too much for the worst. Whether the middle ones are well suited I am not sure. It might be possible to separate the Education and Psychology Courses, leaving Education a compulsory subject and placing Psychology on the same basis as, *e.g.*, History and Drawing, as a subject which could be taken on its own merits and having a proper advanced course. This would allow much more individuality of treatment among students and reduce the classes to a size at which individual and experimental work would be possible."

4. " Our work here is to train teachers and we think that, though it is impossible to teach well without an active understanding of psychology, the theoretical work which our students do should be in connection with their work on the Theory or Practice of Education and not a study of psychology as such."

5. " Consider it to be of first hand importance, and would like more time for observing children of different ages and in varying environment, and for psychology to be taken as a separate subject."

6. " I consider the study of psychology to be of the highest importance in the training of teachers, and should like it to be possible (*a*) for the students to have more time to devote to the subject ; this would involve a change in the type of Principles of Education Paper as set by the Board of Education ; (*b*) to carry out some experimental work. Many of the students, who have been Uncertificated Assistants before training, have said that they have realised . . . from the study of psychology how many serious mistakes they have made in dealing with children simply through ignorance."

7. " We consider that a knowledge of psychology is of the greatest possible value to the teacher, and absolutely essential as a guide in dealing with the varying natures and needs of the children. We should welcome an extension of the syllabus, especially in the direction of recent psychological developments. The syllabus as laid down by the Board of Education scarcely touches modern psychology, and, while entire liberty is left to the lecturers as to how it should be interpreted, the form of the Final Examination for Training College students prevents wide deviations from it."

8. " We think that the definite study of psychology is too difficult a subject for the immature student, who lacks the necessary experience to profit by such study. There is bound to be a certain artificiality about it, and it tends to become ' bookish.' Students are very apt to adopt and use technical terms the real meaning of which they have not the knowledge to understand. We think, however, that more could be done, where time and circumstances permit, in simple child study."

9. " Instruction in Psychology is not so much fused as interwoven with the instruction on the Principles of Education and Teaching, *i.e.*, the course in Principles is so taken that such portions of Psychology as are relevant are treated in the order in which they are required in the course, as a basis for the discussion of the educational principles concerned. This is being tried experimentally, and it may be that we shall decide to revert to an arrangement which provides for separate, though correlated, courses in Psychology and in Principles of Teaching. The chief difficulty in regard to so reverting is that we found that the shortness of the course of training—two years—did not allow of laying with thoroughness the psychological bases on which the course in Principles is afterwards founded. One would like to have time to carry through a course which, basing itself on observation of children both in and out of school and on trial teaching of children, passed on to an elucidation of principles of teaching, this being followed up by a study of psychology,

in which these are founded. After this the process to be reversed, *i.e.*, the Principles of Education to be re-examined in the light of their psychological bases, and teaching to be practised in application of the principles. Such a course is, however, quite impossible in a two years' period of training."

10. " I consider that the study of the psychological bases of educational principles and methods is absolutely essential for the development of an intelligent attitude in students. Failing this the work would be merely empirical and dogmatic. Students appreciate the meaning and explanation which psychology puts upon their own every-day experience, and it creates an attitude of mind towards their teaching and towards children, the value of which is realised perhaps more fully with further experience. . . . A simple practical text-book which can be used as a guide, or as supplementing other work, is at present our greatest need."

11. " Since all education is in the last resort individual work, each child presenting a separate problem, it is of first rate importance that teachers should have such a training as will place them in the position of investigators in respect of their individual pupils."

12. " A most vital subject to the teacher almost loses its entire value through the fact that inadequate time for this subject reduces responsible lecturers to the expedient of ' spoon feeding.' My opinion is that the greatest difficulty of students in training is not one of understanding method *qua* method but their lack of knowledge of psychology independent of its application."

13. " The Board's syllabus and examination seem adequately to meet the needs of the students and we are perfectly free to deal with the subject from any point of view we may think desirable."

14. " Our experience of the two-year student is considerable. We feel very strongly that the material is so young, so immature, so lacking in experience, and so unused to philosophical studies that an advanced or merely theoretical course of psychology would be useless and even harmful. What they need is a broad and firm foundation for their work as teachers. This the Board's syllabus provides. When more advanced work has been attempted, we have found that it resulted in vague and loose conceptions, grave inaccuracies of thought and expression, and a loss of balance between theory and practice. We are therefore entirely satisfied with present arrangements, which are sufficiently elastic to enable any college to develop its own point of view. We are equally well satisfied with the Board's examination papers and for the same reasons."

15. " Psychology is a subject fundamental to the training of teachers•

" 1. It is the basis of child-study, leading to the character formation.

" 2. It is the basis of all acquisitions of knowledge and skill.

" 3. It is the basis of all method."

16. " I regard psychology as the first basic science. I would abandon all that is empirical in the present Training College Syllabus as given for the normal student, and would substitute for it something like the syllabuses laid down for Teachers of the Blind, Deaf, and M.D.

Children. . . . I am strongly inclined to think that our sloppy and ineffective work is largely due to the teacher's rule of thumb training and to the ignorance of the basic sciences, and his consequent lack of faith in himself, his work, his pupils."

17. " Some psychological training in indispensable in a teacher's outfit. Its importance lies not so much in the knowledge of psychology that is gained as in the attitude of mind it can give. Teachers tend to be too dogmatic, too little concerned with mental diagnosis, too unsympathetic to undeveloped minds. The course in psychology should do something to show the danger of dogmation, to create interest in diagnosis, to develop sympathy with children."

18. " The Board of Education's Syllabus in Principles of Teaching is wide, and consequently the lecturer is free to emphasize that portion of the Syllabus which she deems important. This is much appreciated. It is felt that if any change is necessary it is in the Final Examination, and that there questions dealing with the application of psychology to education should have a more important place than at present."

19. " We are agreed that it is necessary for all lecturers in education to have a sound knowledge of psychology themselves, extending far beyond what can be presented directly to the type of student at present in the Training Colleges. This knowledge should not be confined to one or two aspects of the subject, and lecturers should keep abreast of modern thought. As regards the place and value of psychology in the training of teachers there is some difference of opinion among us. Some feel that with the less intellectual and the markedly immature it would be best to avoid definite psychological teaching altogether, at least until the students have had more practical experience in dealing with children. Others feel that even these students can gain something from psychology, and that if they are not capable of profiting by it they are unsuitable candidates for their profession. It is generally agreed, however, that this side of their professional work greatly interests students, and the majority feel that if it is kept in constant touch with the practical work in education, with the natural desire of the adolescent to explore, to understand, and to harmonise his own mental life, the study of psychology is a very valuable part of the education course. With regard to suggested improvements, the chief need is for more time for individual and group discussions with those students who are capable of carrying their studies farther than the rest of the class."

2. " There is an idea current in some quarters that if you give (the student) his psychology he will apply it for himself. Those who hold this view can have had little experience of education. The application is the great difficulty. The psychology can be supplied easily enough, from books, but it needs endless private tuition, seminar, and discussion to bridge the gap between text and school."

Theism and Thought.

A Study in Familiar Beliefs. Gifford Lectures, 1922. Arthur James Balfour, Earl of Balfour. (Hodder and Stoughton. pp. xii + 270. Price 15s. net.)

In this second series of Gifford Lectures Lord Balfour has completed the argument begun in his lectures on " Theism and Humanism " delivered in 1914. The volume before us is, however, intended to be self-contained. It begins with a summary of the previous course, and one lecture from that course is reprinted in an appendix. We shall therefore be justified in regarding "Theism and Thought" as Lord Balfour's final summary of the views he desires to recommend.

The book has thus a special interest as the confession of faith given us near the end of a long and honoured life by one who perhaps more than any other figure represents in the imperfect conditions of our modern life, that type of philosophic statesman which Plato held to be the highest embodiment of true wisdom in thought and action. And this interest is heightened by the tone in which the book is written. Lord Balfour repeats the message which he first delivered more than forty years ago. He sometimes complains that that message has been misunderstood. Elsewhere he welcomes other forms of essentially the same gospel. But it is clear throughout that the experiences of a varied and active life have only increased the earnestness of his conviction that the faith in which he has himself found peace and inspiration will bring like benefits to others also. His literary skill and his incisive reasoning are as attractive here as in his earlier books, but they are made the instruments of a wider sympathy with ordinary folk, and his joy in dialectical debate is curbed by his deep sense of the fundamental issues everywhere at stake.

With these facts in mind, it is in a spirit of " natural piety " that I shall try to summarise the argument of the book before venturing some criticisms on the validity of its reasoning.

The object of the two courses of lectures, Lord Balfour tells us, is " to determine on what theory of the universe the highest values of ethics, æsthetics, and knowledge—the good, the beautiful, and the true—could be most effectively maintained." He starts, that is, from our sense of the value of moral excellence and of beauty, and assumes that this value is not a mere figment of our imagination. Life would really be poorer if there were no saints or heroes, or if beauty were recognised as illusory. In the first course of lectures he argued that we can feel confidence in the reality of goodness and of beauty only if they are in some way rooted in God Himself. Ethics and æsthetics, if they are to explain, and not to explain away, the experiences with which they deal, must lead on to some form of theism. In the second course, with which we are here concerned, Lord Balfour discusses the implications of our intellectual knowledge, and in particular of such " familiar beliefs " as that in an external world, " a world of men and things." We believe that our senses give us true knowledge of an external world. We believe also that science tells us more about this world, and that the teaching of science must in principle be accepted. But can we give rational reasons for these beliefs? In a series of chapters Lord Balfour examines various attempts which have been made to supply such reasons. He comes to the conclusion that our belief in an external world, either known to us directly by perception or indirectly by scientific investigation, and our belief in the existence of conscious persons, cannot be justified on purely logical grounds. The fact that we all share these beliefs can be explained only by the assumption that we have certain "inevitable convictions" and "intuitive probabilities" which are not the product of any process of reasoning. The question then arises what is the source or ground of these inevitable convictions? The answer given by "Naturalism" is that such convictions are to be explained by the principle of Natural Selection. "Our familiar creed is to be counted as one among the many valuable contrivances gradually evolved for the advantage of the race."[1] "Everything we believe, we believe because in the order of causation blind matter and undirected energy happened to be distributed in a particular manner countless aeons before man made his earliest entry on the cosmic stage."[2]

This answer he rejects. He does so in the first place because belief in such a theory implies that a process of blind chance can issue in rational knowledge. The theory itself being the effect of irrational influences can have no value as truth. Secondly, the answer given by Naturalism tells us nothing about the way in which we must search for truth. The alternative answer is that of Theism, which postulates a divine guidance of the whole process. Instead of blind chance we find rational purpose. By means of our inevitable beliefs we are shepherded into the narrow way that leads to truth. Truth is therefore really true although we cannot prove it.

Perhaps the chief value of Lord Balfour's book lies in its insistence by precept and example upon the need for critically examining the grounds of our beliefs, and it would be a poor return for the intellectual stimulus he provides if we gave to his conclusions a mere unreasoning assent. I shall, therefore, very briefly ask how far, as it seems to me, we can follow the path he indicates.

We may agree that any view of the world which fails to find a place for the highest experiences of mankind, for goodness, truth, and beauty, is fatally incomplete. Nor need we quarrel with his rejection of Naturalism, of which theory, indeed, there are now few defenders. The universe is neither a chaos of fortuitous atoms, nor "an unearthly ballet of bloodless categories." There is, we must believe, an ultimate purpose in things. Reality implies value and not mere existence. It seems to follow that the world of our experience must be in principle a coherent whole, but this is a conclusion which Lord Balfour rather grudgingly admits. In his last chapter, indeed, he tells us that the "metaphysical" point of view, from which God is "regarded as Spirit underlying all the universe of appearance," must be somehow combined with the "religious" standpoint of theism as he understands it. But he repeatedly disclaims any intention of propounding a philosophy, which means presumably that he is not seriously interested in trying to form a conception of the universe as a coherent whole, and his argument seems to imply a definite renunciation of any such attempt.

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[1] p. 229.
[2] p. 237.

The consequent lack of unity in Lord Balfour's description of human life and of the world at large is, I believe, the main reason why his book, in spite of its obvious merits, appears to me inconclusive and unsatisfying. The greater part of the volume is devoted to showing that our accepted beliefs are full of inconsistencies and incapable of being justified on strictly rational grounds. On the method of proof a few words will be said below. We shall, however, all concur in Lord Balfour's view that our knowledge is imperfect, and that the logical intellect alone cannot establish its complete validity. But this acknowledged inadequacy of our grasp of truth does not necessarily compel us to believe that our thinking is incurably irrational, and that the guidance of an all-wise external power must be called in to direct our blind gropings towards the truth. Such a belief implies a more or less absolute division between unassisted human thinking and divine inspiration, or between the world and God. It is surely more in accordance with the highest teaching both of philosophy and religion to hold that, however dimly we may see, yet God is the light of all our seeing, or in other words that human thoughts and human purposes are real though imperfect manifestations of the ultimate Reality whose nature they in their measure share. The immeasurable difference between our knowledge and perfect truth, or between man and God remains, but it is a difference within a more inclusive unity, a difference, to use imperfect words, of degree and not of kind.

If we hold this latter view we shall not condemn our knowledge as essentially irrational, but shall regard it as the germ of truth which has in it the possibility of further growth. We shall note, for example, how the Naturalism which Lord Balfour finds inherent in the scientific attitude has in fact been partially overcome by the progress of science itself in the fields, for instance, of biology and psychology. That scientific knowledge, or knowledge of any kind, can ever give us a complete insight into the realities of the universe is, we shall admit, impossible. For our knowledge is always limited by our finite powers, and truth is only one aspect of Reality. But our truth is true as far as it goes, and is a revelation of that which truly is. It is not a mixture of illegitimate reasoning and blind intuition.

If I am right, the fundamental weakness of Lord Balfour's argument is due to two characterictics of his thinking. First, he tends to think in terms of isolated individuals and not of individuals who realise their individuality by being members of larger wholes. Thus, for example, he holds that all experience is experience of particulars,[1] from which it necessarily follows that something beyond experience must come in if we are to form general judgments. It might, I think, be shown that much of his polemic against the defective logic of our ordinary thinking is vitiated by this error. As an illustration we may compare his attribution of our "intuitive probabilities" to supernatural guidance with the "intuitive induction" which Dr. W. E. Johnson shows to be implicit in our thinking.[2]

Secondly, Lord Balfour often exhibits a curious preference for vague ideas. He seems to find a relief from his incisive criticism of definite ideas by resting in beliefs the very indefiniteness of which saves them from such criticism. You may be wrong, he says, in thinking that you see a red bull in a green field, but if you say you see merely a red patch on a green patch, your position is impregnable.[1] This tendency has led him to leave his argument undeveloped just where we most desiderate further light. What exactly is meant by theism? How is the divine guidance given? What is the relation of human freedom to the will of God? These and similar questions inevitably occur to us, and we should have welcomed any definite answers, however tentative and incomplete, which Lord Balfour felt himself able to give. We are, however, left with only the vaguest indications of the direction in which the answers must be sought.

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[1] p. 89.

[2] "Logic," Vol. II., Chap. VIII.

Still if Lord Balfour has not given us all we should like to have, he has given us much for which we may well be grateful. Disagree as we may with some of his contentions, no one who has read his book can close it without feeling that he has held converse with a mind in which rare intellectual power is mated with deep religious feeling. To have held such converse must inevitably lead us to face more frankly and more reverently the fundamental questions which Lord Balfour raises.

H. Bompas Smith.

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[1] p. 130.

Citizenship.

By Sir Henry Hadow. (Oxford University Press. 1x+240 pp. 6s.)

ARTHUR YOUNG held mistakenly that an ideal system of taxation would be one "bearing lightly on an infinite number of points, heavily on none." Sir Henry Hadow has used a similar prescription in choosing the scope of his lectures. But he has judged rightly, for it is appropriate in these lectures—the first given on the Stevenson Foundation—to make a survey of the whole field of citizenship. A great part of the course is devoted to a review of ideas about the State held by leading publicists from Plato to Sir Henry Jones. But the net is cast so wide that such matters as the League of Nations and civic training are brought into the discussion ; and a single chapter contains sketches of the Athenian and Roman Empires, the less durable structures reared by Asoka, Genghiz Khan, and Tamerlane, and a general view of British colonial history. Few speakers could face such a task in one evening. But those who are acquainted with Sir Henry Hadow's other works and have sampled his brilliance as a lecturer, will not be surprised to find that on every topic, however lightly touched, he has something fresh and interesting to say. Although within the compass of this work no full discussion of any single aspect of political science is possible, there is abundance of suggestion, and of illustration worth remembering—for instance, the accounts of the Iroquois Confederacy (pp. 55-7), of the striking failure of William Lane's community in Paraguay (pp. 72-3), of the Persian substitute for the three Rs (pp. 192-3), and of the Icelandic court, in which a malefactor "could not be convicted because he alone knew the particular formula of conviction" (p. 210).

In discussing the views of other thinkers, the lecturer lets us learn incidentally something of his own theory of the State. He emphasizes the truth that underlies the obvious faults in Rousseau's doctrine. His account of Hegel is written in a different spirit from that of Professor Hobhouse's criticisms. His book ends with a warm appreciation of Mazzini and Sir Henry Jones. Thus the general conception of the State on which the lectures are based seems to be that of the Idealists, although it does not appear whether the author is in strict agreement with Neo-Hegelian thought.

In the chapter which deals with Hegel, allusion is made to one of Maitland's favourite principles—the importance of group personality. Maitland himself applied the idea to other communities besides the State. Some reference to corporate personality in this wider sense (giving the views of Maitland and those of other writers such as Gierke, Dr. Figgis, and Professor MacIver) would have been valuable as an expansion of Hegel's theory. The study of community in general throws a great deal of light on the nature of the State and of its organic unity ; and the relation between the State and other groups is not only an interesting point of principle, it is becoming—not for the first time—an important question of practical politics.

A whole lecture is devoted, as is fitting, to the bearing of education on citizenship. The three attainments taught to the ancient Persians were to ride, to shoot, and to speak the truth. Sir Henry Hadow sketches another threefold programme. There should be " training in *expertise* for (the pupil's) coming craft or profession." Further, " all true education should aim at satisfying the spiritual needs of man, through the mysteries of religion, the wonder of painting and music, the beauty and depth and sympathy of great literature." And, " because man is ' naturally a citizen,' his education should prepare him, in true gradation, for playing his part in the political and economic life of the country." The natural citizen has no instinct or innate gift of statesmanship, which will lead to good government without learning or experience. Therefore training for citizenship is needed. The author speaks with approval of the methods of training which have become familiar in recent years—practical acquaintance with self-government in classes and school societies, and, for pupils in the later stages of school life, some definite teaching on public affairs. The difficulty of an overcrowded curriculum, which enters into every discussion of civic teaching, is thrust aside with a happy definition : " a curriculum over-occupied with subjects in which other teachers are interested."

This is briefly Sir Henry Hadow's view of the place of civics in education. He has also something to say on the place of education in civic life, treating it especially as a means towards that equality of opportunity which is one of the avowed aims of democracy. " Every citizen," he says, " has a right to be educated to the utmost of his capacity, and to make what he can of his life afterwards." This principle is virtually the same as that which underlies a familiar clause in the Education Act of 1918. It remains to translate the principle into practice.

We have indicated only a small part of the contents of this volume. Its variety is remarkable, reflecting both the versatility of the author's mind and the width of his reading. It will yield entertainment and profit to anyone who is truly a " political creature," to anyone, in particular, who cares to see how political facts which are by no means ideal lend themselves to idealism in philosophy.

CONRAD GILL.

Anthropology.

By A. L. Kroeber. x+523 pp. 22.5×15.5 cm. 42 figs. and maps. (London. Harrap. 1923. 12s. 6d.)

THE growth of modern transport has given a new, and for the moment, a disturbing vision of world unity; we are all brought into sudden contact on a large scale and cannot shed old nationalist prejudices hiding under the name of patriotism quickly enough to comport ourselves decently and to plan adequately for the future; we lack a knowledge of one another. Again the impetus to thought given by Lamarck and Darwin has brought a new and disturbing vision of the unity of man and nature, and even Copec reveals to us how hard it is to adjust ourselves in religion and views of conduct to this great revolution. It is for us teachers to have faith that these new and enlarged visions will in the end enrich man's opportunities of spiritual expression and promote the good life. If we have that faith we shall take up the task of adjusting education to the new situation, and there are many signs that this effort is being made. History as understood and taught till recently is now seen to be merely a fragment of a long record, a fragment that remains tangled and confused unless we learn a great deal more about a past that goes far behind classical Greece or even ancient Egypt and Mesopotamia. The story of the unfolding and blossoming out of man's relations with his environment needs to be worked out and used educationally, whether it be under the title of general history, or under that of geography or under that of anthropology. The popular success that Mr. Wells' "Outlines of History" has achieved in spite of many inadequacies and errors is clear evidence of the widespread consciousness of our new needs. Our American colleagues are helping us to meet that need by working out such books as Clark Wissler's "Man and Culture" and Kroeber's "Anthropology," and many another. The books on "Everyday Life" by Mr. and Mrs. Quennell (publ. Batsford) and the stories arranged and interpreted by Miss Fleming (publ. Benns) are valuable educational efforts and will greatly help the teacher who reads Kroeber to use the thoughts that book suggests in his actual teaching, while J. Arthur Thomson's "What is Man?" will be found invaluable as a protection against a lot of blatant rubbish that is lightly put together, and sometimes introduced into education, about early man, and will help the teacher to see the bearing of anthropology upon our general outlook.

Kroeber writes as a teacher and wisely tries less to impart information which students can find for themselves than to put them on their guard against fallacies and possibilities of error with which so subtle a study is strewn. It is specially good that Kroeber realises and works out repeatedly the absurdities that result from placing ourselves at the topmost pinnacle and indulging in the false sentimentality of doggerel about "Land of Hope and Glory." Kroeber tellingly pictures views that might have been held long ago about inherent inferiority of the peoples of N.W. Europe. Our predominance and supposed inherent superiority is a matter of a few centuries and of some particular phases of culture-change, far from enough to use as basis of wide arguments about a Great Race and other vainglorious superficialities. The early part of the book does not seem very promising, and the chapters on physical evolution might well be rewritten with the help of recent work published in the *American Journal of Physical Anthropology* and some publications by Elliot Smith. The old difficulty about race classification is once more worked over, and the author regretfully contents himself with the three old classes, Caucasian, Negroid, and Mongolian. He might have struck out for a new goal in such a book as this, which has suggestion rather than encyclopædic detail as its aim. All human beings are more or less fertile *inter se*, so races are not separate entities, but rather more or less local aggregations of physical characters. We really have to see that influences of heredity and environment have led populations in Africa towards a standard of dark coloured skin of peculiar quality, poverty in hair, longheadedness, and so on.

When Kroeber comes to deal with the mental characters associated with race he is interesting and perhaps especially valuable in his warning against errors in interpretation of intelligence tests. Many tests in U.S.A. undoubtedly had their efficiency for general purposes destroyed by the fact that they were conducted only in English. This of course made them very useful for army purposes, for which they were intended, but it makes large parts almost useless for general argument as to race-endowment. A reviewer who is continually in contact with the difficulty of language differences in education in Wales may be allowed to speak feelingly on this point.

In dealing with languages and language groups the author gives warnings against crude classifications of language as inflective, isolating, agglutinating, and so on. Just as the people of a region, even if fairly uniform physically, probably carry an aggregation of physical characters that may have come from diverse origins, so the language of such a people is likely to be an aggregation of very composite characters derived from distinct sources. He shows that the borrowing of words is much easier than the borrowing of sounds, and that this again is far easier than the borrowing of forms of linguistic structure. He might have gone much farther, with great profit, into the anthropology of sound changes that occur so regularly when words pass from one people to another with different physical characteristics among those who set the standards.

A survey, in two parts, of the beginnings of human civilization has good and weak points mixed, and the part on those beginnings should be read in close connection with that on Old World Prehistory and Archæology. The latter, one is glad to note, utilises a good deal of recent work, and may serve to correct the impression parts of the other might leave that, for example, Aurignacean, Solutrian, Magdalenian are successive stages in one and the same scheme of evolution. As Solutrian is a local intrusion that does not in the main lead on to Magdalenian, it behoves us to be very careful how we use the table on p. 178, which nevertheless has many features of great value, though like all diagrammatic tables it has to " plump " for selected opinions on sadly disputable points.

Kroeber warns us continually against facile views about heredity and environment, language and race, and one illustration is worth giving. We often say that the negro in his shift from Africa to America has changed his language but not his skin. This is right up to a point, but might we not, with our author, put it otherwise and say that the English language having been established as an accompaniment of modern settled agriculture in the Southern United States has persisted, with some modifications be it allowed, in spite of the large change in character of the population that is the result of slavery. The rooting of cultural elements in the settled life of a region is a fact of enormous importance often too little emphasized. We are reminded of the facts about maize-growing. The methods commonly employed in America are largely derived from those in use there in pre-Columbian times, though of course immigrants from Europe have thought out alterations in detail. But the methods used for maize-growing in Europe are rather adaptations of those in vogue there from early times for growing cereals.

Kroeber is careful to insist that environment, however powerful, does not so much dictate to man what he shall be and what he shall do. It presents opportunities and problems which his varying initiative and his power of learning from neighbours or immigrants enable him to meet in different ways. Determinist arguments about influences of geographic environment have been apt to mislead even leaders of thought; how much more busy teachers whose reading is bound to be limited. In discussing the diffusion of culture the author is largely in line with Clark Wissler and his colleagues, and puts his case very fairly so far as the reviewer can judge. One wishes that he and others would examine the views of Elliot Smith's school more fully on some points, however little they may be disposed to agree that Old World influences deeply affected pre-Columbian Mexico and Central America. On this point it would seem that Kroeber does not quite deny all influence from the Old World.

The older anthropologists were disposed to think that given certain circumstances the human mind would work along certain lines and that the same cultural acquisitions might be gained independently many times and in many places. There is another school owing much to Rivers and Elliot Smith, which emphasizes the likelihood that many inventions of detail have occurred only once and have spread by diffusion of ideals through culture contacts. Kroeber and the American school are trying to maintain an intermediate position in the matter and to use this famous controversy as our British anthropologists above named would also have it used, as an incentive to further and more minute investigation.

It is evident that we are dealing with a subject of research and education which is still only at the beginning of what must be a great career, and one may justly say that Kroeber's book is specially successful in conveying the idea of a science developing under our eyes and touching the whole of our life.

H. J. Fleure.

Book Reviews.

History of Mathematics, Vol. 1 : by David Eugene Smith.
(Ginn and Co. pp. 547. 21s.)

" Science," remarked a Persian scholar of the 7th Century, " is not a monopoly of the Greeks." The first volume of this History bears out the truth of this saying ; it presents to us a pageant extending over 3,000 years of scholars sprung from every nation of the world, who have contributed much or little to mathematical knowledge. The truth is borne in upon the reader that mathematics, independent as they are of time and place, are indeed " a grand expression of the human mind."

Volume I cannot be judged apart from Volume II, which completes its plan. The first volume gives an outline history of the growth of mathematics considered chronologically and racially : the second volume, we are told, will concern itself with the evolution and life history of certain important topics, such, for example, as the theory of numbers, the methods of calculation, various types of geometry, the early steps in calculus. Volume I may at first sight appear to be not much more than a catalogue giving the names of mathematicians and a list of their individual discoveries, their dates, nationalities, places of birth and occasionally, as if to lighten the load, trifling anecdotes relating to their lives. But this is a superficial view. An immense amount of material has had to be compressed within 600 brief pages, but a serious student of the book will be able to place, to some extent at least, mathematical events in their proper relation to world history and to connect the development of mathematics with that of the race. He will be able to follow the lines of development of mathematical knowledge in any and every specific nation within the Orient and within the Occident, and he will be able equally well to trace the influence of one country upon another, as, for example, the influence of Greek mathematics upon Persian and of Arabian mathematics upon the countries of Europe. The achievements of any one scholar are set forth, whether he belongs to East or West, whether he be an Archimedes or a Newton or a lesser light. On the other hand, the development of any one branch of mathematical knowledge can be sought from its origin or origins to its present position, for the narrative makes it appear that when the world, or part of the world, is ripe for a further advance in knowledge, more minds than one, each working independently and perhaps from a different standpoint, hit on the same discovery.

The value of the book is increased by excellent illustrations, portraits, and reproductions of manuscripts, also by a useful index and by a chronological table that includes, besides the names of mathematicians, reference to outstanding historical events, and by a comprehensive bibliography.

The history of mathematics as a subject of study has value for its own intrinsic interest ; it is a study on the same footing as a history of Art, of Music, or Drama. It has in addition a practical value to the teacher, for it may give to the rather arid and abstract study of mathematics as the average pupil sees it, some human interest—also, to some extent, it may suggest methods of presentation.

The volume under review will require supplementary reading if it is to serve its full purpose. It gives, however, an invaluable outline and it merits the attention of all students interested in the subject.

M.H.

Constructive Conscious Control of the Individual : by F. Matthias Alexander, with an Introduction by Professor John Dewey. (Methuen and Co., Ltd., London. 317 pp. 10s. 6d. net.)

Professor John Dewey tells us, in the midst of a glowing introduction, that " Mr. Alexander has demonstrated a new scientific principle with respect to the control of human behaviour, as important as any principle which has ever been discovered in the domain of external nature." This raises high expectations, but before one has read very much of the book one feels that these are unlikely to be realised.

The standpoint which Mr. Alexander takes up is that " human beings cannot progress satisfactorily in civilization whilst they remain dependent upon subconscious (instinctive) guidance and control " (p. 3), for in civilization, with its rapid changes of environment, man's continued dependence on such guidance leads to defects in the use of the human organism.

According to Mr. Alexander, other attempts than his own to deal with the ills of man have focussed attention mainly on the end to be achieved (end-gaining principle), whereas the only way to achieve success is to give heed to the *means whereby* the result is to be secured. The " means whereby," apparently, consist in an attempt to destroy automatic reaction, whether inherited or acquired, and to substitute accurate sensory appreciation, and adequate reaction of the psycho-physical mechanisms, by means of a technique which consists in the first place of actual manipulation of the pupil's body by the teacher, in order to give the correct motor sensations and adjustments. This is Mr. Alexander's remedy for the defects of the individual physical and spiritual, and for the resulting sickness of civilization. The method of procedure is outlined on page 152.

Perhaps it is scarcely fair to judge of a method one has not seen in operation, but it seems to us highly doubtful if Mr. Alexander's claims can be vindicated. Would this introduction of conscious control whether it lead ultimately to habit or not, a point not made very clear, be really such a great gain for the individual and for civilization ? Doubtless there are cases which would benefit by Mr. Alexander's method, but for the majority of people are any of these " cures " we hear so much of nowadays either necessary or desirable ?

There is a tedious amount of repetition in the book, and there is no index—a quite unpardonable omission. E.S.

Goethe : by Benedetto Croce. With an introduction by Douglas Ainslie and a portrait. (Methuen and Co. London. xvi+208 pp.)

This is no new biography of Germany's most indefatigably " investigated " poet ; not even a systematic study of the sort that would find favour with the orthodox Goethe-specialist. Of all the chapters in this fascinating bundle of essays (brilliantly translated by Miss Emily Anderson) dealing with Goethe's intellectual and artistic life and chief works, none makes a stronger appeal than the concluding one, in which the author emphatically affirms his faith that in the sphere in which he has endeavoured to remain, the criticism of Goethe (like that of any other poet and artist) must be limited and operate, that everything else, unless it is useful preparatory work, is merely academic pastime, and that any attempt to "place" a poet by defining the position which he occupies in the history of literature or of his own time and nation may be useful and interesting but cannot claim any value as literary criticism. *Philologie* has done much for us in the way of throwing light upon the genesis or *urtext* of many of Goethe's works, but it is worth a great deal to have a definite statement like the above, coming from a critic of Signor Croce's calibre, at a time when criticism and the critical faculty proper are almost being driven out of the field by " research work." " The following pages," we read in the preface, " may be welcome to those . . . who feel a certain repugnance for the usual ' Goethe literature.' " They represent in fact the impression left by the work of Germany's greatest poet on the mind of one of the leading critics of modern Europe.

To Signor Croce Goethe appears as above all thoroughly and wholly human, ever working with all his faculties in harmony, never separating feeling and thought, never working on externals or as a pedant. Not by any means all his works show him at his greatest ; " Herrmann and Dorothea," for example, and " Wilhelm Meister's Wanderjahre," above all the Second Part of " Faust," come in for some sharp criticism. " Gotz von Berlichingen " also, " a drama in which real poetry . . . is rare," " one of those works which one might term pleasing rather than poetical," is pulled down from the pedestal on which German patriotism has placed it ; one may perhaps doubt whether Signor Croce has not perhaps gone a little too far in his condemnation of what after all is to many one of the most attractive of all of Goethe's works. On the other hand he confesses to cherishing a certain tender feeling for poor Wagner, who gets a chapter to himself (" Wagner the Pedant "), a study which for lightness of touch as well as keenness of insight is not excelled by any of the other fifteen essays to be found in the book. Sylvestre Bonnard, Signor Croce thinks, is the direct descendant of Faust's famulus ; a lovable and surely not altogether valueless character ; although specialists of his sort should not repeat the mistake of a certain colleague of their's, one Jörgen Tesman, who had the brilliant idea of marrying Hedda Gabler ! M.F.L.

Psychology and Primitive Culture : F. C. Bartlett.
(Cambridge University Press. pp. 294. 8s. 6d. net.)

The author is to be congratulated on having presented in this book a psychological study of certain problems of primitive culture illustrative of the view that the underlying psychological mechanisms are much the same at all stages of social development and that the study of the simpler forms is the best introduction to the psychology of contemporary social life.

The main problems as stated in the first chapter are two : the elucidation of the main tendencies towards behaviour, feeling, and cognition as expressed in primitive society, and the discovery of how these tendencies are related at any time in any particular group, how the relations change in the course of development, and the ways in which new tendencies are derived. Of these the author insists that the latter is by far the more important. The second chapter is devoted to a brief suggestive analysis of the fundamental tendencies displayed in man's social reactions. These are summarised as (A) primitive comradeship, assertion and submission, (B) tendencies to conservation and social construction, (C) individual tendencies whose social effects are largely dependent upon their relations to the A group, and (D) group difference tendencies clustering about the social conventions and institutions of a particular community and operating directly as social determinants of individual responses.

The greater part of the book illustrates and develops the position advanced in the first two chapters by showing how the various tendencies operate in the Folk Story, how they may conflict with or reinforce one another, how culture may be transmitted by contact (migration of groups) or by borrowing (influence of individuals who have travelled, etc.), and the conditions which make for the diffusion of culture, its elaboration, or simplification. The ninth chapter discusses the function of intensive studies of particular groups, emphasizing the importance of distinguishing the group difference tendencies. The last chapter summarises the main conclusions of the discussion.

The book is not merely a contribution to the methodology of social psychology : it contains suggestions and analyses which should stimulate thought by all students of social life.

Of special interest to those directly concerned with education will be the chapters on the Folk Story and the transmission of culture. There is nothing " educational " in the narrow sense of that word in the whole book, yet throughout educational implications can be discovered. As an instance may be quoted the principle illustrated by " pugnacity with primitive comradeship develops organisations in which rivalry has friendly expression . . . with assertiveness it produces social despotisms and with submission it may give rise to groups or bands of aggressive outlaws," the principle being that the nature of the interrelations between the various innate tendencies is of greater value for the understanding of social life than the number and status of the tendencies themselves. At the same time it does not appear to be sufficient to describe the relations merely by the preposition " with " unless this is a confession that after all the important thing is the relative importance of the various tendencies which co-exist.

The reader who is familiar with school work can trace analogies between the different responses of primitive groups to similar influences from without and the different responses that follow the presentation of similar material to different classes and may realise that the same fundamental principles hold throughout social life : that the relation of the new material to cultural patterns already established, and that of the bearer of the new material to the other members of the group, largely determine whether the material is accepted and how, if accepted, it is used. Class-room experience so familiar as to escape reflective attention may become a centre of interest when the teacher realises the similarities as well as the differences between the " young barbarians " of the class-room and the members of groups at different stages of social development. The writer, for instance, found much material for thought in the story telling in oral composition work by junior pupils in a secondary school after having read the chapter on the Folk Story.

On p. 254 we are told that there is much material available for intensive psychological studies of primitive groups ; a bibliography of this could with advantage be given in a second edition, especially as the author has deliberately restricted himself to a very small portion of it. It is scarcely necessary to add that the book is adequately indexed and referenced.
A.E.C.

Theories of Memory : by Beatrice Edgell.
(Oxford University Press. pp. 174. 7s. 6d.)

This is not merely a summary of theories of memory, though as such alone it would be a very useful addition to psychological literature.

The first chapter is an account of Retention as a Biological conception. In it Hering, Samuel Butler, Semon, and Jennings are quoted. The second and third chapters deal with memory and New Realism, and contain a historical outline of the treatment of memory by philosophical writers from Hobbes to Spencer and a discussion of the treatment of memory by Alexander, Bertrand Russell and Holt. Bergson's conception of memory is discussed critically in the fifth chapter, and in the sixth and last Miss Edgell attempts to meet the difficulties raised in the previous chapters, treating memory from the standpoint of mental life.

She suggests that the problem of memory as knowledge of the past cannot be resolved into problems of lineage of organic processes, and that the influence of biology on the psychological problem is shown more truly by a new spirit of investigation within psychology itself than by any attempt to graft the findings of psychology on to those of biology, or to restrict the method of one to that of the other. Psychology is biological in that it studies, and studies from within, from the standpoint of the experiment.

She deals at some length with the question of the existence and the nature of memory-image, believing it to be a crucial question in the psychology of memory. Imagery does the work of semi-impressions and is an event in mental life just as a sense impression is an event. Imagery sustains ideas. Taking the example of a door banging, Miss Edgell asks " What occurs when I remember hearing the front door bang, say, half-an-hour ago ? " There is the image of the bang, a reproduction of the cognitive process continuing the function of the sense-impression of half-an-hour since and sustaining past cognition. The image process is analysed out from the knowledge construction it sustained. There is, for introspection, knowledge of the past experiencing, which experiencing bears the meaning, memory of the hearing of the bang.

The reproduction or renewal of the cognitive processes affords construction open to the analysis of introspection and thereby is revealed the past state of mind.

" The contrast of imagery and sensation, which is fundamental in the memory of things, the direction of the analysis. The deadness of these constructions in comparison with the construction of the forward trend of consciousness date the reminiscence as past." The chapter finishes with a discussion on belief, trains of ideas, and the unconscious. The persistent existence of memory-images as vestiges of sense-impressions in any realm of sub-consciousness or of the unconscious is denied.

In the concluding paragraph emphasis is again laid on the need for experiment. The essay " only purports to be a discussion of theories." The fact that it is constructive as well as destructive adds greatly to its value.

F.M.R.

Science and Civilization. Essays edited by F. S. Marvin.
(Oxford University Press. pp. 350. 12s. 6d. net.)

The applications of Science to human needs do not constitute the sole humanistic aspect of the study ; there is another which consists in tracing the origins of the sciences and the means by which they have grown from incomplete, inexact, and ill-understood observations, oft times coloured by awe and mysticism, to the wonderful systems of organised information as they exist at the present day, true monuments of man's perseverance, intelligence, and skill. Lately a tendency has been shown to stress this aspect of the history of science, which besides being of interest to most people may serve a direct educational purpose by the demand it sets up for a background of general history, and so stimulate general reading and the unification of history, for science is not of one nation, creed, or period ; Brahé may pair with Kepler, Galileo with Newton as their works show scientific synthesis, while the mediæval medical lore of the East develops through Hieronymus, da Vinci, Harvey, Simpson, and Lister, to the marvellous achievements of modern surgery. But facts which are commonplace to us stand in danger of being forgotten unless they are kept before teachers, and it is in works like the one before us that the safeguard is provided against neglect of an important branch of humanistic study. The Unity History Schools have been the means of bringing to public notice many aspects of civilization in an organised and related form. Shortly after each of the courses given at Woodbrooke a volume embodying the lectures has been published. The sixth volume bears the above title; it contains twelve essays and in no way appears inferior to its companion in the Unity Series. There is food for all tastes; if interests lie in tracing the continuity of thought and the reasons for apparent stagnation during that period often called the Dark Ages, Professor Singer shows how the dawn broke through; the story is taken up by Professor Whitehead, who deals with the interdependence of Newton and Galileo, and is followed by essayists who treat of science in its relation to industry, education, health, religion, and humanity. While the earlier essays in the book necessarily lay the stress upon the beginnings of mathematics, geology, medicine, and biological science in the Egyptian and Greek Schools, the second half of the book, while not losing sight of origins, puts more emphasis upon modern aspects. As one would expect when the contributions are from the pens of J. A. Thomson, A. E. Heath, J. S. Huxley, J. L. Myres, J. L. E. Dreyer, C. H. Desch, and F. G. Crookshank, the whole volume is a valuable review of the influence of science upon human affairs, and by no means the least interesting article is the Editor's summarising essay. A.P.B.

Personality and Social Adjustment: E. R. Groves.
(Longmans, Green and Co. pp. 296. 7s. 6d.)

In this book the author attempts to gather together the results of various disconnected enquiries into problems of social science, to emphasize essentials and to give "full directions for steady progress."

With such a programme it is impossible for the author to do more than give very summary statements on most of the problems touched upon. He discusses briefly the need for social control of impulse, the conflict of instincts, the nature of habit, and the emotional basis of social conflict; chapters are devoted to the social significance of various instincts, fear, anger, sex, gregariousness, and self-assertion; two chapters are concerned with the emotional maturing of the boy and the girl; the remaining chapters touch upon the inferiority complex, phantasy, and social rationalization, authority and individuality, and abnormality.

There is much in the book that may interest the average parent if he can be induced to read it, and the lists of topics for discussion and report at the end of each chapter should prove suggestive to readers, though we note that in these there is some duplication, *e.g.*, Topic 6, p. 34, and Topic 1, p. 129, and considerable overlapping. Extensive bibliographies are given.

With many of the author's statements we are in complete agreement, but in some cases we feel that a more thorough psychological analysis would have led to less sweeping assertions. Why must it be that "with the coming of the child to the adolescent age new and unreasonable self-assertion is to be expected" (p. 186)? "Definite habitual reactions based upon one of the primary instincts may become established in the mind and have a very great emotional content" (p. 38) as a definition of a complex leaves much to be desired—evidently the author feels this, as after referring to Professor Tanzley he says that the meaning of the complex can best be brought out by illustration.

Many concrete illustrations are given, and we regret that the author has not felt at liberty to use much of the material which is in his possession. A.E.C.

Exercises in Thinking and Expressing: J. W. Marriott.
(G. G. Harrap and Co., Ltd. pp. 167. 2s.)

This attempt "to treat some of the rudiments of right thinking," avoiding the technicalities of logic, is designed for use in day schools, evening schools, adult classes, etc., and can scarcely be expected to meet equally well the needs of pupils of such different ages and interests. It is, however, extremely suggestive and should, we think, be most valuable for use with pupils in evening schools, especially if the teacher bears in mind the moral of the story from Dickens' "Hard Times," which is given on p. 35.

We believe, however, that formal lessons even when based on such delightfully informal and stimulating chapters as many in this book, will not do much to cure the apathy of many adults towards politics or to remove their child-like faith in the infallibility of the Press or in politicians. We agree with the author that such a result would be desirable, but it seems to us that it can only be attained if our pupils develop an interest in social affairs and if in all branches of instruction they are trained to analyse evidence and to weigh arguments. If they can be trained to carry over the principles enunciated by the author much will have been done to educate democracy, but it may be that this is the gulf across which many have not the ability to cross.

The book deals in an easy manner with most of the problems of logic, beginning with a brief account of popular argument, passing rapidly in review the problems of observation, classification, and definition, and treating more fully the problems of inference; throughout there are interesting illustrations from everyday affairs and from literature. It is arranged in forty lessons, each of which is followed by a series of exercises and references to literature for further illustrations. A.E.C.

Tolstoi: the Teacher: by Charles Badouin. Translated by Fred Rothwell. (London: Kegan Paul, Trench, Trubner and Co., Ltd. pp. 218. 6s. 6d. net.)

The account here given of Tolstoi is attractive and sympathetic. His pedagogical history was commonplace enough: he began as a disciple of Rousseau, and developed by way of Pestalozzi and Froebel, but the formality and aridity of their German disciples led him early to the conviction that their teaching was being used for the erection of a new dogmatism. His reaction to freedom, to individualism, and to experiment, is the episode of vital significance in his career as educator, and the date of his practical experiment—1858 to 1862—is a proof of his sagacity, for the bonds of formalism were to be tightened in other countries before the call to freedom should be heard so clearly. This view of Tolstoi, that he was important because he saw some fundamental truths of life and experimented with the modes of their application, is orthodox enough, and this book confirms it. But it does so with unnecessary and misleading exaggeration. The pedagogues, those "frigid pedants," fare badly, as no doubt they ought, for their crimes still abound in the schools, but it is surely late in the day to claim that they are entirely ignorant of childhood, and that Tolstoi penetrated to its deepest mysteries.

It is a provocative book, and yet a disappointing one. There is no clear picture of Tolstoi at work, or of the social and intellectual forces against which he fought. The central figure is too remote from the stream of history, and his doings are too much ignored for the sake of his theories. We cannot judge teachers so; we must see their ideas in action, we must know the conditions of their problem, and we must know how the school society reacts to the experiment.

It is difficult not to suspect that the author has been too much impressed by the discovery that Tolstoi somehow conceived the educative process in terms of suggestion, and recognised the importance of auto-suggestion. Yet it is difficult to reconcile this deliberate suggestion with the freedom which Tolstoi advocated, and which he established in his school of Yasnaia Poliana. The difficulty is nowhere resolved in the book, and it leaves the reader with the uncomfortable feeling that to suggestion has been given an importance out of all proportion. F.S.

Electricity and Magnetism for Advanced Students: by S. G. Starling, B.Sc., A.R.C.Sc., F.Inst.P. (Fourth Edition. Longmans. Price 12s. 6d. net.)

We can confidently recommend this book to every student of Physics proceeding to the pass or honours degree. While the main portion has suffered little change, and some omissions would have been desirable, over one hundred pages are devoted to a summarised account of radioactivity, positive ray analysis, isotopes, and the modern theory of the atom, bringing a very considerable area of new ground to the notice of the general student; this he will need further to explore with assistance from other sources. In the brief account of ionisation and radioactivity we should prefer to see a more extended account of ionisation by collision and also a greater proportion of the space devoted to the alpha particle in view of its outstanding importance in radioactive processes. Some of the electroscopes described might well have been replaced by the alpha ray and the beta-gamma ray types of Professor Rutherford's design. A long experience of these and similar instruments in the laboratory with which the writer is associated has proved their instructional value to the advanced student.

The quantity of material which the book contains may be disturbing to the examination candidate, although on account of its generally excellent quality he will recognise the price as an attractive one. H.B.K.

A Critical Examination of Psycho-Analysis : by A. Wohlgemuth, D.Sc. (Allen and Unwin. pp. 250. 10s. 6d.)

This is the most substantial criticism of Freud's doctrines yet published in English. It applies a penetrating analysis to Freud's conception of the Unconscious, dreams, and symbolism, and to the method of psycho-analysis. In respect of the last Dr. Wohlgemuth rightly emphasizes the danger of an analyst, whose views are known, suggesting lines of association to the patient. Granted, for example, an analyst known by the patient to trace most " complexes " to sex origins, then the associations of the patient, if carried far enough, are fairly certain to reach some idea of sex.

The book seems to me, however, to be unbalanced in two ways. Firstly, Dr. Wohlgemuth concentrates on the most extreme and fantastic of Freud's views. In the preface he explicitly adopts as his motto, " *Ce n'est que le ridicule qui tue.*" With this object, some of Freud's interpretations of dreams, and his fondness for the Œdipus complex, will obviously provide anyone with good sport. To Freud's more moderate statements, especially, for example, the exposition in his more recent Lectures on Psycho-Analysis, Dr. Wohlgemuth does not, it seems to me, give due weight.

Further, as the book is an Examination of Psycho-Analysis, it would seem proper to pay some attention to the use of that method in the hands of such men as Rivers, McDougall, Hadfield, Crichton Miller, William Brown and others who have found suggestion and help in the work of Freud, without adopting all his views.

In spite, however, of these weaknesses, the book, which is written in an exceedingly clear style, is one which no serious student of Freud's doctrine can afford to neglect. C.W.V.

Principles of Political Economy : by Charles Gide, authorised translation from the twenty-third French edition by E. F. Raw, B.Sc. (Econ.). (London : George G. Harrap and Co., Ltd. pp. xiii—527. 10s. 6d. net.)

This, the English translation of the shorter of Professor Gide's two well-known text-books on Economics, adds yet another to many attempts in recent years in England to produce a work suitable to the needs of elementary students which shall be as complete as possible and at the same time be lucid without being dull. There is no doubt that there is need of such a book and that, if the gap is not to be filled by English or American writers, Professor Gide's " Principles d'Economie Politique " is the best substitute available.

Regarded from the English standpoint Professor Gide often stops where real theory begins—a fact which may explain why no British Economist has written such a book as this. Again, he deals somewhat perfunctorily with topics which, if raised at all, ought to be handled with much greater precision and rigour than he employs. Hence there is a danger that readers may obtain the impression that certain questions are simpler than they really are. This is specially true as regards his treatment of international trade and the foreign exchanges.

The book, however, is rich on the human side and contains much concerning social questions that English writers pass over with far too little comment. The translation is well done and reproduces Professor Gide's lucid style. It would perhaps have been better to have retained the distinctively French illustrative examples. English readers could then have learned something about French institutions and have profited by comparing them with their own. J.G.S.

The Action of Alcohol on Man : by Ernest H. Starling, with essays by Robert Hutchison, Sir Frederick W. Mott, and Raymond Pearl. (Longmans, Green and Co. pp. 291. 12s. 6d.)

Professor Starling has written a many-sided account of the influence of alcohol, including its effects on fatigue, digestion, the circulation of the blood, and body temperature. The author writes that the evidence has convinced him that in a civilized country such as ours the abolition of all alcoholic beverages from our midst, even if carried out by universal consent, would be a mistake and contrary to the permanent interest of the race. We confess, however, that we find Dr. Starling's evidence of the evil effects of excessive alcohol drinking more convincing than that on which he defends moderate indulgence. Even excessive indulgence, he says, has its good side, in that it tends to eliminate those who by the fact of such indulgence, show they belong to an undesirable type.

An Introduction to the Theory of Educational Measurements : W. S. Monroe.
(Geo. G. Harrap. pp. 364. xix. 7s. 6d. net.)

So much work has been done in the domain of educational measurement of recent years that a genuine effort such as this of Professor Monroe to bring together and review the numerous ideas advanced from time to time is very welcome. Subjectivity is a factor of ordinary examinations of which account must be taken, and the author gives considerable attention to the value of norms, quoting McCall's improvement on the Point-scale method usually employed. But norms have their limitations, of which Professor Monroe makes a comprehensive list, and it is open to argument whether they can ever be perfected to such an extent as to make them fit substitutes for the examination by the teacher who knows what he wants and frames his own tests accordingly.

Whatever may be felt regarding the application of refined statistical methods to human and ever varying matters like mental achievements it must be conceded that the author has treated a very difficult subject in such a way as to set out the principles of examination most clearly, even for those who are not mathematically minded ; but the reduction of the technicalities of statistical methods to their simplest terms for the comprehension of non-mathematical educationists has yet to be achieved.

For the reader on this side of the Atlantic references to American tests which are unfortunately not widely known in England make subsequent explanations obscure for the general reader, but the "Introduction" was designed for class work and is a class book, so something is left for the teacher to supply. The bibliographies and suggestions of topics for discussion at the end of every chapter give great assistance to the private student who has perhaps already acquired some knowledge of the general use of tests and the treatment of the results they afford.

A.P.B.

The Elements of Vital Statistics in their Bearing on Social and Public Health Problems : by Sir Arthur Newsholme, K.C.B., M.D., F.R.C.P.
(George Allen and Unwin, Ltd. pp. 623.)

This is an enlarged and rewritten edition of an earlier work by Sir Arthur Newsholme. It now constitutes a volume of very wide comprehensiveness, giving a critical summary of the most recent information on all important topics relevant to the subject. Those who know the author's valuable Board of Education reports will be prepared to find that he gives life and vivid interest to statistical facts, and that his comments are marked by caution and impartiality. Among topics of special interest to educationists and students of social problems the following are dealt with : sex and age distribution in population ; the decline in the birth rate ; infant mortality ; mortality and its relation to mental and physical status and to density of population ; statistics of poverty and housing (topics inseparable from some problems of education) ; occupation in relation to sickness and mortality ; alcoholism, public health, age and sex in infectious diseases, venereal diseases and cancer. This is only a selection of topics, and indeed the book is a veritable encyclopædia of information.

Further, and equally valuable, the reader in reading the treatment of these topics will at the same time get a training in statistical methods. Sir Arthur is constantly pointing out lurking fallacies ; so the student is prepared first by concrete studies, on thoroughly sound pedagogical lines, for the shorter Part II of the book (occupying 100 pages) on "Methods and Miscellanea" dealing with the arithmetic of elementary statistics, the statistical study of causative correlation, tables and graphs, statistical fallacies, etc.

C.W.V.

Everyday Biology : by J. Arthur Thomson, M.A., LL.D.
(Hodder and Stoughton, Ltd. pp. 189. 2s. 6d.)

An admirable introduction to modern biology, by a master of popular exposition of science. The preface states : "Candidates reading for examinations in Biology will not find what they want in these pages, but it is possible that they may find something better." We think they will find both, and we hope Professor Thomson will not rest till examiners do provide more scope for such knowledge as this book affords.

Makers of Science : by Ivor B. Hart.
(London: Oxford University Press. 1923. 320 pp. 6s. net.)

Six Great Scientists : by Margaret Avery.
(London : Methuen and Co., Ltd. 1923. 100 pp. 2s. 6d.)

Dr. Charles Singer, in a very interesting introduction to the former of these two volumes, makes a powerful plea for the humanistic treatment of science and for the careful study of the history of science. Opinions will probably differ with regard to the treatment of the history of scientific development most suited to the needs of the advanced student, but there will be considerable agreement with the principle that for younger students " the biographical method is probably the best and most attractive." The two books here considered attempt to supply some of the material necessary for the adequate presentation of the subject by the biographical method.

Mr. Hart concerns himself only with Mathematics, Physics, and Astronomy, and writes in an easy and pleasing way about the researches of some of the outstanding figures in the history of these studies. Aristotle, Roger Bacon, Copernicus, Ampere, and Kelvin among others are so portrayed that the reader obtains a view of certain of the broad movements in scientific history.

Miss Avery, in her more modest volume, confines her attention to the Biological Sciences in the nineteenth century and describes the work of Pasteur, Lister, Darwin, Wallace, Mendel, and Galton.

One welcomes such books, for they are indicative of a renewed interest among science teachers and students, in that humanistic element in their subjects without which science is as " dry bones."

E.C.C.

My Class in Composition : Julien Bézard, translated and adapted from the French by Phyllis Robbins. (pp. 268. Cambridge, Harvard University Press. 12s. 6d. net.)

This is a modest record by Professor Bézard of work actually done in one year with a class in the Lycée Hoche, Versailles. In the author's preface we find a clear statement of the principles underlying his methods of teaching composition. He wants his pupils " to discover the things that words stand for, the meaning and living interest of what they learn " and to become " able to express definite ideas in a correct form." He attaches great importance to the delicate work of aiding pupils to prepare their essays, preferring to discuss the work with the pupils before they do it rather than after though taking care not to check their initiative. He does not neglect the correction of essays " provided they have been written with care." In this correction, which is carried out by informal discussion (pupils aged 15 to 17), he emphasizes the value of encouraging the fine qualities in pupils, which "far outnumber their defects."

The reader of this translation, which reaches a high level, will read with interest the detailed accounts of the essays set, the methods of preparation, and the informal discussions. The Diary shows how an inspiring teacher translated his principles and general methods into terms of actual school work. From it the reader will obtain a deeper insight into the spirit of the author than from chapter after chapter on methods of teaching. We regret that the price of the book is so high ; the book deserves a wide circulation among those who are concerned with the teaching of composition.

Decorative Leatherwork : by P. Wylie Davidson.
(Longmans' Technical Handicraft Series. pp. xiv+117. 7s. 6d.)

It is a difficult task to attempt the description of all the different ways in which leather may be ornamented within the space of a hundred pages, and as a natural consequence some important sections of the work are very slightly treated.

The book is profusely illustrated, and the chapters dealing with simple plaits, lacing, knots, and tassels, are suggestive, but the illustrations of modelled and stencilled leather do not give any idea of the beauty such forms of decoration may impart. The combination of simple metal ornaments and fittings with leather is ably discussed, but there is a tendency throughout the book to lay too much stress upon artificial aids, such as moulds and special tools, in the production of decorative detail ; the use of the pinking iron, in particular, should be deprecated. The chapters devoted to the description of the different kinds of leather and sources of supply are useful.

L.S.

Stories of Scientific Discovery : by D. B. Hammond.
(Cambridge University Press. pp. vii+199. 6s.)

This is a delightful book, written in a clear interesting style. The subject-matter is well chosen, the plan adopted being that of first choosing representatives of different branches of science, and then selecting from these the men and women whose lives had special human or dramatic interest.

The writer shows throughout her sense of personal friendship for those of whom she writes, and no doubt her work will send many to the fuller biographies to which she makes ample reference.

The discoverers with whom she deals are Priestley and Lavoisie, Rumford, Herschel, Fabre, Faraday, the Curies, Darwin and Wallace, and Pasteur, and she gives attractive glimpses of effects produced on these by other great minds of their day.

If the spirit which pervades this book could permeate the science laboratories of to-day, the millennium in science-teaching would be on its way and science would show itself to be what Professor Nunn calls " one of the grand historic expressions of the human spirit."

Everyone's Affairs : Robert Jones.
(Sidgwick and Jackson, Ltd. pp. 200. 2s. 6d. net.)

This little book should prove attractive to many whose early education has been neglected but who desire to know more of the workings of modern society. It avoids tedious descriptions of the machinery of government and is mainly concerned with the modern world as it affects individual workers.

Of the eleven chapters four are devoted to work, one to the party system, one to the rise of modern democracies, two to rent, rates and taxes ; one is psychological in character, and one short one attempts to summarise views on nationalism and internationalism.

It is interesting to note that in his account of the Labour Party, which takes twice the space allowed to either of the other great parties, the author states that its chief concern is with the way in which a nation's wealth is divided and with the conditions and payment of work, and then to read the topics with which the author deals most fully.

A.E.C.

A Companion to Elementary School Mathematics : by F. C. Boon, B.A.
(Longmans, Green and Co. pp. 302. 14s. net.)

It is one thing to read a book and quite another to take pencil and paper and work some of the problems it suggests. Mr. Boon moves one to the second course and makes one hope that with such books on the market we may soon find a larger number of pupils developing interest in their mathematical studies, and carrying them to a higher stage than hitherto. The historical aspect has definite value in teaching ; this has been given due weight throughout the book, which illustrates the growth of mathematics in a pleasing, yet thorough, way and leaves the kind of impression there ought to be in the mind, that there are still further developments to be made. The chapters on symmetry and continuity are very useful, and the concluding illustrations of fallacies are interesting exercises in thought. The book should help many teachers to promote interest in their lessons and may be useful, too, in the relatively slack period between the examinations and the end of the term.

A.P.B.

Longmans' Class Books of English Literature.

This series has previously proved its value, and teachers will welcome the appearance of additional volumes, which include William Morris, " The Wanderers " ; Henry Newbolt, " The Book of the Long Trail " (abridged) ; Nansen, " The First Crossing of Greenland " (abridged) ; E. F. Knight, "Where Three Empires Meet" (abridged) ; Froude, " English Seamen in the Sixteenth Century " ; Dickens, " A Tale of Two Cities " (abridged) ; and Macaulay, Clive and Warren Hastings.

For the sake of those unacquainted with this useful series it may be added that the books are bound in limp cloth, are printed in clear type, and are published at prices ranging from one shilling to three.

An Elementary Psychology for Teachers : Lawrence Augustus Averill. (G. G. Harrap and Co., Ltd. pp. 362.)

The author in this " epitome of his own course in psychology for teachers-in-training" in the Massachusetts State Normal School at Worcester, approaches his subject through a study of the child's behaviour. He then discusses heredity and capacity for learning. Finally he deals with individual differences, their causes and their effects on the teaching problem.

The book admittedly deals more with fundamental principles of child and adult psychology than with the application of those principles to the teaching situation, the aim being that the student should master some of the underlying facts of psychology and then proceed to professional courses in educational psychology and principles of education.

Students are advised to study children extensively and intensively, and many good suggestions for such study are made.

The American bibliography provided is interesting, but would be more educative if less exclusively American.

Gustav Freytag : Der Staat Friedrich's des Groszen : Originally edited by Wilhelm Wagner, Ph.D., revised and enlarged edition by Karl Breul, M.A., Litt.D., Ph.D. (Cambridge University Press. xvi+123 pp. 1924.)

We agree with Dr. Breul that non-German readers will scarcely find a better introduction either to the study of the life and achievements of Frederick the Great,or to the enjoyment of some of the larger literary productions of Gustav Freytag, than the one afforded by this essay, now revised and enlarged for the Pitt Press Series. No inconsiderable share of the credit in this case is due to the new editor himself, who has made considerable additions to the notes of the original edition and also contributes a concise but comprehensive introduction dealing with the life and works of G. Freytag and a list of books of reference. This edition is to be particularly recommended to adult students of German desirous of improving their knowledge of the language without having recourse to the more ordinary type of school text.

Lazarillo de Tormes : by H. J. Chaytor, M.A. (Longmans, Green and Co., for the Manchester University Press. 3s. 6d. net limp duxeen ; 4s. 6d. net cloth. pp. 65.)

The admirable edition by the Rev. H. J. Chaytor of the Spanish classic, " Lazarillo de Tormes," deserves a cordial welcome not alone from students of Spanish but as well from those interested in the wider study of comparative literature.

The publication of " Lazarillo " in 1554 began a new literary genre—the picturesque—in Europe. The Rev. Mr. Chaytor, in an interesting Introduction to the present edition, discusses lucidly the rise and development of the genre in Spain, and indicates its influence on other literatures, including our own. The text is very clearly printed, there are pages of useful notes and a copious bibliography. Altogether the present edition should make highly pleasant the reading of a work which, apart from its literary influence, is of great interest in itself as a skilfully painted picture of life in Spain at a critical period of her history.

Poum : Paul et Victor Margueritte
Vieilles gens vieux pays : Jean de la Brete.
Amusettes de l'histoire : Charles Normand.
(Sidgwick and Jackson, Ltd. 2s. each net.)

These texts form part of a series, " French Texts of To-day " ; they are abridged and annotated by Dr. F. A. Hedgcock, who has done his work with his usual precision and discrimination.

The first two mentioned above have also an introduction by him. The books are attractively produced. They should be very useful to middle and upper forms in secondary schools, whether as class text-books or as books for reading by the pupils themselves in spare time ; they not only provide interest but will give the young reader a good idea of the charm and finesse of style and expression so characteristic of French.

Unconventional Arithmetical Examples for Juniors: by R. S. Williamson. (Cambridge University Press. 76 pp. 3s.)

This extremely interesting collection of arithmetical problems " originated in a series of attempts to produce question papers in Arithmetic which would test the thinking powers of candidates for scholarships to secondary schools, and many of the examples have been used for this purpose in the Yorks. (W.R.) County Minor Scholarship Examination." The Teachers' Edition contains answers and some notes, together with a useful conspectus " showing both the arithmetical topic and the tables involved in each example." The book provides a useful and stimulating revision course in arithmetic suitable for the Elementary and Preparatory Schools.

A Treatise on Light: by R. A. Houston, M.A., Ph.D., D.Sc. (Longmans, Green and Co. 486 pp. 12s. 6d. net.)

This revised edition of Dr. Houston's " Treatise on Light " contains an additional chapter on some recent advances in the science, in which the author discusses briefly but clearly such topics as " Determination of Angular Diameter of Stars," " The Half-Watt Lamp," " The Einstein Star Shift," " The Quantum," and Moseley's work on " X-Ray Spectra." The chapter maintains the high standard reached by the earlier editions of the book.

Metalwork for Primary Schools: by F. T. Morrison, M.I.M.E., late of the Department of Public Education, Cape of Good Hope. (Longmans, Green and Co. pp. 48. 2s.)

This work marks yet another attempt to enable the smaller schools to introduce some form of Handwork in districts where, owing to the high initial cost of building and equipment, the usual Handicraft Centre is non-existent.

The book is well worthy of adoption by those anxious to introduce an interesting and highly educative form of manual instruction specially suited to the needs of country districts; and is full of suggestions as to the manner in which rational correlation with the remainder of the school curriculum may be effectively carried out.

We would, however, point out that the suggested use of scrap material is not always desirable from the points of view of either hygiene or true economy.

Metalwork for Agricultural Colleges and Secondary Schools. pp. 96. 2s. 6d.

By the same author, follows the general outline of the previous book, but contains exercises of a more advanced nature, which necessitate the provision of a properly equipped room. Like the earlier book this is richly suggestive of the manner in which the teaching of the class room may be practically applied in the Handwork room, and this feature alone should commend the book to all teachers of Manual Training.

By some oversight of the proof readers, many references in the text to Plate " No. 9 " have been overlooked, for on pages 11, 12, 16, 39, 52, 53 and 55, these references apply obviously to Plate No. 8; while on page 24, Plate " No. 9 " is again quoted when Plate No. 4 is intended.

Both Books are interleaved for the student's notes and sketches.

Readings in English Social History, from Pre-Roman Days to A.D. 1837. Edited by R. B. Morgan, M.A., M.Litt. (Cambridge University Press, pp. 585. 16s.)

This handsome illustrated volume comprises all the extracts made by the editor and published in five separate volumes a few years ago. It deals with every aspect of the life of the people and their rulers, making use of original documents, ancient and modern. The editor will surely succeed in his aim to tempt readers to explore further for themselves. To all teachers of history the book would be a most valuable aid to class and individual work.

There is a very full list of contents, but the book would be even more useful if, in a further edition, the editor could supply an index. Also, some of the illustrations might be better placed in the text.

Psychology and Self-Development : by Henry Eastman Bennett.
(Ginn and Co. pp. 296.)
The author states in his preface that the ideal of this book is practical helpfulness to students. He attains his ideal to an unusual extent. The style is vigorous and interesting. It is unfortunate that some statements sound dogmatic—due probably to the necessity for brevity. The outlook is at times strongly physiological, but there are many useful diagrams. Especially valuable are the numerous book references and thought-provoking questions at the ends of the chapters. Illustrations from the problems of the work of the student are frequent, and many useful lessons can be learnt from them.

Chemische Grundbegriffe : A. Benrath.
(Harrap's Bilingual Series. 2s. net.)
Most teachers of " German for Science students " are familiar with the difficulty of providing suitable reading matter for their pupils once the elements of grammar have been mastered. Mr. Bithell's edition of " Chemische Grundbegriffe " may safely be recommended to all those who desire an interesting and at the same time not too difficult reader for the continuation of their studies. It is well printed and got up, handy as regards form, and popular in price ; the translation of the German text, too, is both accurate and elegant. A most useful little book.

Maanhaar : The Adventures of a Lion Family, and other East African Sketches : by A. R. Piendar. Translated from the Afrikaans by B. and E. C. Lewis ; with an Introduction by Sir Percy Fitzpatrick, K.C.M.G. (Longmans. pp. 256. 3s.)
A delightful study of wild animal life, imaginative, and yet, as Sir Percy Fitzpatrick states, with that " truth to life " which comes of an intimate first-hand acquaintance with the things described. The book would be a welcome addition to any middle or even senior class library.

College Days : by Stephen Leacock.
(John Lane, The Bodley Head, Ltd. pp. 164. 5s.)
It is not surprising that Professor Leacock has applied his buoyant humour to the lighter side of school and university life. There are plenty of targets for his harmless shafts, and most of us would be the better for the good laugh at ourselves which this book can provide. The chapter on " A Christmas Examination " is a specially delightful one.

Latin Unseens : selected by C. G. Pope, M.A., and T. E. J. Bradshaw, M.A.
(Longmans. pp. 183. 3s. 6d.)
A good class-book. The passages are graded in difficulty from just under to just above School Certificate standard and offer variety without going too far afield. We welcome the system of grouping together pieces from the same author.

Chanson de Geste : Guibert d'Andrenas. Edited by Jessie Crosland. Modern Language Texts. (Manchester University. 1923. xv+95 pp.)
A scholarly edition of an interesting poem belonging to the cycle of Guillaume d'Orange and dating probably from the beginning of the 13th century. The notes and vocabulary are helpful, but extremely restricted, apparently by considerations of space.

Experimental Science in School, Book III : by F. Luke and R. S. Saunders.
(Sidgwick and Jackson. pp. 246. 2s. 6d. net.)
A third year course in Physics and Chemistry which should prove very useful in schools where the teachers of Science work in collaboration with those of Handcraft. The matter is suitable, the presentation is novel so far as books go and such as to arouse interest in science.

The Littlest One : by Marion St. John Webb, with music by Dr. Ralph Dunstan.
(Harrap and Co. pp. 117. 7s. 6d.)
Those who know the delightful collection of poems called " The Littlest One " will be glad to have this book of music written for the words. The spirit of the poems is excellently caught by most of the music. The volume is well printed and illustrated.

CHANGE OF PRICE.

In order to maintain the increased size of the Forum as compared with the Journal of Experimental Pedagogy, it has been decided to increase the price of each number from 1/6 to 2/-. There will be no change, however, in the amount payable by regular annual subscription (direct to the Managing Editor, "Forum of Education," The University, Edmund Street, Birmingham), which will continue to be 5/- per annum, post free, payable in advance.

The Forum of Education.

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Cross-currents in the Teaching of History.

By R. L. ARCHER.

In an article which appeared in the last number of this journal Mr. Bridge quoted from the report of the examiners for the London Supplementary Junior County Scholarships a statement that they found little in the minds of the pupils but a " confusion and welter of ideas " about history. The phrase would hardly appear to be amiss if it were applied to current opinions on the teaching of the subject ; and I hope that readers of the Forum will not consider a discussion of these opinions out of place although it presents no statistics and no experimental evidence.

On the one side we still find a consoling measure of support for the old orthodoxy, that is to say, the habit of weighing events and movements by historical standards and of assuming that the elementary school can and should create a historical outlook, attitude, and body of knowledge conformable therewith. Thus the tests in Dr. Ballard's " New Examiner," though based on his new method of examining, assume that it is the old history which is being examined. Similar are those movements for reform which wish to change syllabuses simply because school traditions seem to be lagging behind the progress of modern historical conceptions. Such movements are that for substituting universal for national history which appeals so strongly to supporters of the League of Nations, and that for laying more stress on social history which appeals to social reformers.

But there are tendencies of quite a different kind which would probably claim to be based on the capacities and interests of children, tendencies which are resulting in a postponement of the teaching of the subject, in substituting myths for history at the lower stages, in giving up all attempt at chronology, in abandoning all sequence and picking stories at random, till we are forced to ask whether history so taught can produce the results for which it was included in the curriculum, and whether, if this is the only history that children are capable of learning, its retention serves any purpose. These views are as fatal to social history and to the history of civilisation as they are to the older political and national history, though it is not uncommon to find attempts to combine them.

There is always hope when negative views become overt. A declaration that a thing cannot be done is a challenge to do it. We have seen this once before on this very issue. Rousseau declared it to be impossible to teach history to children under fifteen, and Robert Owen, in most respects his ardent disciple, soon afterwards disproved the assertion by teaching world history successfully to infants !

A recognition of the comparative failure of history teaching is all to the good provided it is not interpreted as a proof that failure is inevitable. So far from its being inevitable, I believe it to be the direct result of the watering-down of history; and further, that this watering down, if it be not checked, is likely to be a progressive cause of failure, since still more watering down is asked for when the first amount is unsuccessful. At the basis of the whole tendency I believe we can find nothing but one or two discredited bits of psychology.

History is so natural a study to man that psychology has much less to say about it than about more artificial subjects. You could write an exposition of teaching swimming to a human being, but not to a duck. A child learning even the beginnings of arithmetic or reading is like a human being learning to swim; he is learning to do something of which he is capable, but towards which he has no specific innate stimulus. But a child learning history—as history was understood by its inventors, by the writers of the earlier narratives now incorporated in our Old Testament or by Herodotus—is like the duck; he has an innate stimulus. Reading and arithmetic were utilitarian inventions; but history started because the historian felt an impulse to tell and others felt an impulse to listen. It may be granted that ingenuity is needed to guide this crude love of narrative into the paths of scientific history; but so it is with our constructive tendencies, with our artistic impulses, with our joy in bodily movement. This difference may explain how it has come to pass that Huey has written a book on the psychology of reading and McLellan and Dewey on the psychology of number, but no one has written a book on the psychology of history.

However, the psychology of earlier days felt that it was called on to do something, and unfortunately it fixed on what it called the "time-sense" as the topic of investigation. It was indeed right in seeing that some sort of chronology, in the sense of a recognition of "before and after," is of the essence of history. But the result was a verdict that children do not possess this necessary "time-sense"; and the implied corollary was that they were incapable of learning history. The "time-sense" theory, we believe, still lingers in training colleges; and its practical consequences, the banishing of all attempt to teach "before and after" and often a complete absence of chronological sequence, are dominant in the schools. I doubt if the consequences will ever be stopped till the falsity of the underlying theory has been persistently hammered into several generations of training college students.

The view of which we have to get rid is, then, that there exists a specific capacity for apprehending long periods of time, that it is necessary to the learning of historical sequence, that it exists in the adult, and that it does not exist in the child. It may be remarked in passing that there exists a genuine "time-sense" which has nothing to do with history; it is discussed in text-books of experimental psychology, and consists simply in the capacity to estimate the length of short periods of time without a watch, but it has no more to do with years and centuries than has the capacity for estimating distance, which is so useful to the rifleman, to the distances which are dealt with by the astronomer. Quite different from this is the mythical "time-sense" which was supposed to pertain to history and about which questions were asked in examinations on pedagogy. Its supposed character may perhaps be explained as follows: A person of fifty was supposed to be able to see at a single instant the last ten years of his life. Similarly Methuselah would have been able to see the last five hundred years. A modern Methuselah who was taught that the battle of Agincourt took place 509 years ago would only have to conjure up the picture of the last 509 years of his life and he would know exactly what was meant. Ordinary mortals whose life is a span had to reach the same result a little more circuitously, by picturing the last ten years once, twice, thrice, up to fifty times, and uniting the pictures. A child, having little past to recall, was supposed to be unable to do this, and was therefore incapable of grasping relations of time, and therefore of studying history !

Analogy with number or distance shows the absurdity of such an account. We often have to deal with the fact that there are forty odd millions of persons in the United Kingdom ; for instance, when it is a matter of dividing them into approximately equal units of 70,000 to elect a member of Parliament. It can safely be affirmed that no member of the committee which undertook this task in 1918 attempted to form a mental image of forty million human beings and then to divide it into images of 70,000, and finally to count them. All thinking of big numbers, of big distances, or of long periods of time is conceptual. And in arithmetic, in dealing with any numbers beyond the very smallest, children successfully use these conceptual processes. Fortunately time is much simpler than space, because it has only one dimension ; its axioms, such as that, if A precedes B and B precedes C, then A precedes C, are not so much thoughts as conditions of thought ; they have neither to be taught nor learned. All that has to be learned is that a particular person lived before or after or partially overlapped another. The difficulty is only if the child is expected to learn too many such facts.

Teaching sequence is obviously more important than teaching dates, and can precede it. Geology and anthropology are most exact as regards sequence but have the vaguest knowledge of duration. If it were not for high-sounding phrases like "time-sense," would anyone contend for a moment that children cannot understand a sequence even before they leave the infant school? Children who were fortunate enough to have history read to them out of a picture book acquired ideas of sequence by remembering where to look for favourite pictures ; and, as soon as they could read, carried over their knowledge to the text. Robert Owen arranged the names of the chief people and events round the walls.

My own recollections of childhood make it impossible for me to admit the "time-sense" difficulty. Those were the days when the list of kings of England were learned in order, and at eight I knew the order but not the dates. One curious memory illustrates how this built up a sequence in my childish mind. I had somehow come to think that hymns came down from biblical times ; and, when first I came across "From Greenland's Icy Mountains," I asked whether Greenland was discovered before America, or how it came to be known to the people of Bible times.

When we pass from sequence to comparative durations, telling the stories in chronological order and spontaneous revision by looking at pictures will of course no longer be enough. Probably a vague idea of duration is there, but it is based on the number of pages intervening between two narratives. Obviously some kind of time-chart device is necessary to render comparison between lengths of period possible; big periods of time have to be translated into small portions of space. Experiment really is needed at this point to discover at what age the transition from the mere "before and after" to comparative ideas of duration can be profitably made. But, to be valuable, the experiment must not be made with children who have been muddled by being told stories of all periods in close succession or who have been hurried through the centuries at express rate. The children must be quietly taught stories in sequence, with plenty of time given to each story, and then experiment can be made at any age when we feel fairly confident that it will be successful, and gradually pushed back to see how soon children will readily jump to an understanding of a time-chart. This is all so simple that I fear it may appear to many readers to be unworthy of writing in a scientific journal; but the most obvious truths have to be emphasized when they are so largely neglected in practice.

Possibly another half-unconscious psychological belief which may be injuriously affecting the teaching of history is a tendency to attribute children's interest in one class of fact and lack of interest in another too exclusively to their innate constitution. The old child-study collected more than enough facts about children's tastes, but did little to discover how far they were natural and how far the direct result of teaching. I am inclined to suspect that Mr. Bridge himself has fallen into this trap in one passage where he suggests that there is a hereditary tendency in the children of the children of the old governing class to be more interested in military history and a hereditary tendency in working class children to be more interested in social history. Surely it is more natural to attribute these tendencies to environment. If so, we have here a case where we have in the past been misled by too hasty assumptions as to children's innate interests, and have in consequence been induced to make our history unnecessarily blood and thunder to meet children's supposed tastes.

With the two psychological principles on which Mr. Bridge lays stress, children's interest in persons and the need of quantity, I am in hearty agreement. Till quite recently the former principle was common ground; but many teachers seem latterly to have abandoned it at the stage when they teach social history. Surely you cannot suspend the operation of a psychological principle even for a year like the operation of an Act of Parliament. If the principle is true, it will assert itself whether you will or no; and, if it is false, it may be abandoned for more than a year. Here we have a very clear case of cross-currents; two principles, the necessity of making history personal from the child's point of view, and the desirability of dealing with social phenomena from the adult point of view, are both recognised, but in a manner which makes them inconsistent with one another. Yet surely it is no difficult task to embody the life of the castle, monastery, and manor in personal narratives.

The second of Mr. Bridge's principles, that of quantity, has been consistently ignored in most schools. Teachers who would never dream of teaching an arithmetical rule in a half-hour's lesson and leaving it at that habitually treat a historical topic or a biography in this way.

I do not know how far the curriculum in all parts of the country is alike. That with which I am familiar is something as follows: Primitive man sometimes finds a place in the infants' school. A medley of myths and stories appears in the lower standards. Further up the concentric system prevails, and generally involves telling the same stories, each begun and ended in a single lesson, in several successive standards. Even in the upper standards the fuller treatment of a particular period is tending to give way. Sometimes the concentric method is varied by treating British history from the social point of view one year, from the political another, and so on. Central schools usually have the benefit of specialist teachers, and then scrappiness is avoided, but not the effects of the scrappiness which has prevailed at the stages below.

No one wishes to force a cut-and-dried syllabus on all schools. Everyone recognises that experiment is a condition of advance. But we must be clear as to the meaning of experiment. Experiment implies a clear idea as to aims and methods which the experimenter believes will probably, or at least possibly, succeed, and that he is putting his methods into practice to test the truth of his belief. The existing "welter" of practice is not so much experiment as what Bacon called *mera palpatio*, random groping, from which it is the merest accident if any discovery results.

Before we can experiment we must have an aim. I think we can limit the field of controversy as to our aim to the question how far history deals with the growth of the nation, or of existing economic and social conditions, or of civilisation as a whole. A century ago, when democracy was in its infancy, British history was studied chiefly to trace the development of British political institutions, and at a higher stage Greek history and Roman history were studied because they exhibited the rise and fall of the only other democratic institutions of which we possessed the full story. The history of Great Britain was one self-contained but incomplete story, that of Greece and Rome was another self-contained but complete story which would throw light on our own. A fuller understanding of historical causation has co-operated with the shifting of political interests from the building up of a democratic constitution to the use which can be made of it, and made this conception appear too narrow. Two stages in the development of a new idea of history may be distinguished. In the first, historians came to see that political institutions are largely determined by social and economic conditions, and political thinkers came to see that one of the chief functions of political institutions was to exercise a measure of conscious control over social and economic conditions. The second stage was marked by the discovery that the isolation of British history, classical history, old Oriental history, and the rest, which on the political side was to a large extent real, did not apply in the social and economic sphere, that, on the contrary, the story of civilisation, to be complete, must begin ages before written history, and that the development of democratic political institutions, which had previously formed the main plot of history, was just a chapter in the story of the growth of civilisation. This change in the outlook of the historian is an inevitable result of discoveries in many fields—of the theory of evolution, the work of anthropologists, discoveries about palæolithic and neolithic man, the reconstruction of Mesopotamian and Egyptian history, the Cretan explorations, and the more critical study of the histories of peoples whose records had long been known. It so happens that at the time when different historical fields are beginning to attract men of different views, when Labour is naturally turning to economic history and internationalists to the history of other countries than our own, the historian, free from any one immediate practical interest, is able to say to nationalist and internationalist, to constitutionalist and social reformer, to old and new alike : History is incomplete without every one of your interests ; to understand any one of them, you must study the rest. Hence the aim seems clear. The history needed by adults is the history of civilisation ; and the history of British democratic institutions, the history of the modern industrial system, and all the rest, are parts of it, and are comprehensible only when viewed as parts of it.

But does it follow, because this is the history needed by the adult, that it is the history to be taught in elementary schools ? Since the bulk of adults have no opportunities later, it is clearly desirable, if it be possible. Is there anything which makes it impossible ? Here is where experiment must come in.

But first we must recognise that our aim carries with it implications. A history of civilisation must leave an impression of growth. It must leave an idea how, step by step, man has acquired greater power over nature and greater power of controlling himself. On the material side it traces the invention of tools, pasture, agriculture, houses, metallurgy, ships, writing, machinery. On the human side it traces the evolution of individual morals, religion, political institutions, international morals. Both processes are still proceeding, and each affects the other. The picture need not be very detailed, but it must be coherent. Therefore it must be in sequence. Nor can it admit large gaps ; it must preserve continuity. We want to know how we have come because it throws light on where we are going. Hence it is on the possibility of giving a continuous and coherent history that we need experiment.

We may here remark that the extent of years and countries need not diminish fullness since we are perfectly free to select, and it need increase the number neither of the persons nor of the topics which we include. We start with a clean slate. Nothing must be assumed to have a prescriptive claim to be taught. The only impossibilities we recognise are those created by the capacities of children. Impossibilities resulting from matter being new to teachers are temporary.

It is tempting to start syllabus-making, but I mean to do so only so far as it suggests what kind of experimenting is possible. Fortunately the chronological beginning provides us with an illuminating instance of experimenting already done. The Americans have worked on prehistoric man and have made him suitable even for infants. Since we have no record of individual persons, they have simply invented them ; and Ab, though no such boy ever lived, teaches sound enough history. This stage takes us to the end of the Stone Ages. The next stage has always been with us in the Old Testament. Abraham and Jacob have given children a better idea of the life of pastoral man and Joseph and Solomon of an Oriental court than was given of the Middle Ages by school text-books. Here the need is for different teachers to try various ways of dovetailing their biblical and historical teaching. The possibilities of Greek and Roman history are hardly yet explored at all. The attempt to pass them by with a few myths is, as far as history is concerned, a failure. A story, whether it be an old legend, a historical novel, or a tale written for the schoolroom, may reconstruct a past period or it may not. Ab does; whatever modern criticism may say as to the historical character of Genesis, Joseph does. But Heracles, Perseus and Persephone do not. They need a background instead of furnishing one. In some future paper I may discuss the selection of ancient topics. What we need is attempts. When we come to modern history, it is treatment rather than selection which needs experiment. But experiments must be made by believers in children's capacities. An experiment undertaken to prove that children cannot do a thing will not prove it, because the belief contributes to the result. Statistics to prove that they cannot do a thing are valueless unless they were taught by teachers who believed that they could. I will suggest three lines of enquiry:

(1) How far, at various ages, without any deliberate teaching of dates, a sound notion of chronological sequence can be built up.

(2) How far children, without being conscious that they are learning social and economic conditions, can in fact be made to realise them through their incorporation into the narratives.

(3) How far children at different ages have realised the true significance of historical events and the true importance of historical characters.

As regard the conditions, I mean that a teacher who thoroughly believes that by certain means (mine would be sequence, fullness, time apparatus, etc.) he can do more in these directions than is ordinarily done should organise the teaching on his own lines for several consecutive years and then apply the tests. As regards the tests, these would have been impossible under the old methods of examining, when what an examiner usually received was words which had been learned by heart. But the new style of examining popularised by Dr. Ballard has produced tests which are nearly "cram proof." For instance, the discovery of absurdities in statements would easily test whether children possessed a workable idea of historical sequence and a true impression of the social conditions of a given period; and the selection of the best of several statements would test their ideas as to the importance of events and of persons. Sometime such tests may be applied to children taught on different lines from the present to see if they can derive any benefit from learning the stories of Becket and Magna Charta; but space forbids discussing here that particular matter, on which I am not yet convinced by Mr. Bridge. My objects in writing are to secure that the tests which are applied before we despair of fulfilling the aims which we desire in teaching history should be of the new type, and that they should be applied to children who have been taught in accordance with principles of sequence and fullness by believers in those principles.

The Effect of School Training and Special Coaching on Intelligence Tests.

BY A. E. CHAPMAN.

IN the list of educational problems suggested by the British Psychological Society and published in the FORUM OF EDUCATION* appears "The effect of practice in intelligence tests." Since early in 1921 I have been carrying out inquiries which, though not primarily concerned with this problem, brought forward some evidence which led to further investigations into the effect of special coaching and other training on the abilities measured by various intelligence tests.

The aim of those who devise or modify tests of intelligence as distinct from tests of knowledge is "to devise a means of gauging a child's inborn mental capacity."† It is a commonplace of modern educational, religious, and social thought that in man there is an original Adam which to some extent determines what man can make of himself, but there are wide differences of opinion about the plasticity or fixity of this original nature. It is admitted by most that in man heredity counts relatively for less than in other animals and education in its widest sense for more, and all recognise the fact that there are differences between human beings in respect of the extent to which they can learn from experience. To measure these differences in original capacity is the task which psychologists have attempted in the investigations centred round "intelligence tests." Those who have attempted to devise such tests critically are agreed that it is a difficult task, though at least one investigator seems to believe that he has succeeded in devising a series of tests which overcomes the accidental influence of training or environment.‡ That intelligence tests measure innate brightness or ability to the exclusion of the effects of training, though not held by most critical investigators, appears to be the opinion of a considerable number of those who are interested in the tests but have not examined them critically.

The results of my inquiries suggest that environmental factors are more important than is commonly supposed in determining an individual's performance in certain intelligence tests, and that in the case of children at school the results of intelligence tests may be affected by the nature of both general training and special coaching to a degree which makes it hazardous to affirm that they measure inborn ability more than attainment.

PART I.

Effects of School Training.

In 1921 I tested all the pupils between the ages of 11 years 0 months and 12 years 11 months attending four elementary schools in a small area. The purpose of the test was to select not more than seventy who should be transferred to a central school. There were 170 candidates. The test was in two parts, (1) a number of "intelligence tests," and (2) questions on the ordinary school work. After marking the two parts and collating the results it was found that the correlation between the two parts as measured by Spearman's Foot Rule was .8. In the list based on the pooled results the first sixty-nine pupils included none who fell below the arithmetical mean of all the candidates in school work and excluded none who were above the mean in the intelligence tests.

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* November, 1923.

† See Burt: "Mental and Scholastic Tests," p. 2.

‡ *E.g.* Terman: "The Measurement of Intelligence," pp. 68, 77.

In 1922 children were transferred to the central school on the basis of accommodation, each of the four schools having to supply such numbers as would keep the average attendance within the limits of their school accommodation. In 1923, however, entrants for the central school were selected from the same four schools by the same method as was used in 1921. There were 220 candidates. I prepared similar papers.*

A comparison between the results for the two years is interesting. The percentage of candidates passing is measured as a percentage of the number of candidates from each school. The figures are given in Table I.

TABLE I.

Comparison of Results in 1921 *and* 1923.

School.	1921.			1923.		
	No. of Candidates.	No. of Passes.	Percentage of Passes.	No. of Candidates.	No. of Passes.	Percentage of Passes.
A.	40	3	8%	50	10	20%
B.	50	4	8%	80	40	50%
C.	50	40	80%	50	30	60%
D.	30	20	66%	40	20	50%

On comparing the worked papers for the two years it was found that the decreased percentage of pupils securing admission from schools C and D appeared to be due not to poorer work but to the raising of the standard for admission owing to the improvement in the work of the pupils from schools A and B. This improvement in school B is remarkable, as the only change in conditions that I was able to discover was an improvement in the staff of the school, which had from 1916 to 1921 frequently changed and had throughout largely consisted of poorly qualified teachers.

It was clear that in general the improved results from school B reflected improved teaching but it was interesting to see whether the improvement had taken place only in the scholastic part of the paper, or in the intelligence tests, or in both. On comparing the marks for the two parts of the papers separately for this school it was found that the improvement had been in both parts of the paper, as the following analysis shows :—

1921. School subjects, average mark 17%
Intelligence tests, average mark 19%
1923. School subjects, average mark 41%
Intelligence tests, average mark 43%

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* The intelligence tests used were numbers 1, 10, 17, 25, 30, 31, 35, 37, 38, 40, of Burt's "Reasoning Tests," from the *Journal of Experimental Pedagogy*, Vol. 5. No. 2, p. 73.

Another possibility that had to be considered before venturing to accept as a hypothesis the idea that performance in intelligence tests was to a considerable extent determined by the nature of the general training in school was the possibility that the second sample of candidates was intrinsically better than the first. This did not seem probable, as schools B and C were contiguous, the one being a boys' and the other the corresponding girls' school, and one would not have expected the difference between brothers and sisters to have been as great as it was on the first occasion. Other evidence will be given later which supports the hypothesis that the better results even in intelligence tests largely reflect better general teaching.

The poor results from school A in both examinations led me to make further inquiries into the conditions which might affect the pupils' work. I found that they were drawn from the same area as those in schools B and C, in some cases coming from the same homes; that there did not appear to be any selective factor determining the allocation of children to the different schools other than nearness to the school and amount of vacant accommodation at the time of entry; and that the social standing of the parents did not seem to be a determining factor, though as was seen from later investigations social standing was correlated with attainment in intelligence tests among pupils of any one school.*

I made inquiry into the nature of the work of the pupils in the school and found that it was characterised by extreme neatness and by accuracy in mechanical work, including rote memory, mechanical arithmetic and spelling, but that there appeared to have been little training in problem raising or solving. In arithmetic, for example, the training seemed to have consisted largely in the analysis of problems by the teacher, who restated them to the pupils in the form of mechanical sums.

With our present meagre knowledge it is, perhaps, unfair to suggest that the poor results in school A were to a considerable extent due to the character of the teaching, but when one contrasts the results at this school with those at school B, in which there was an improvement in teaching staff, one is led to wonder how far the methods of teaching were responsible. It may well be that methods of teaching vary in efficiency to as great an extent as any other human ability and that a good teacher is an environmental advantage which helps to account for the apparent superiority of pupils in one school or class over those in another. In this connection it is worth noting that Dr. Burt asks whether the general superiority of better class children may not be due to superior environment to as great a degree as to inborn talent.†

PART II.

The Effects of Coaching.

In July of the same year, 1923, I was able to obtain evidence bearing on the effects of special coaching on intelligence tests. This evidence was based on investigations which included the testing of nearly three thousand children. I undertook an educational survey of the whole area, of which the area served by the four schools previously mentioned was only a part.

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* In view of the exhaustive inquiries of Dr. Burt into this problem it is unnecessary to deal with this evidence in this paper.

† See C. Burt, *op. cit.*, p. 198.

The survey was limited to children between the ages of ten and fourteen attending elementary schools. I was able to obtain evidence of the effects of special coaching on different types of tests. With the evidence obtained concerning the mental defectives present in the schools, the grading of the pupils and similar matters I shall not deal in this paper, limiting myself to giving the evidence which bears on the effects of special coaching on performance in certain kinds of intelligence tests.

The tests of general intelligence which were used * can be classified in six groups or sections :—

(*a*) five arithmetical questions from the alpha tests ;
(*b*) ten questions selected from Burt's reasoning tests ;
(*c*) five questions on practical judgments from the alpha tests ;
(*d*) ten number series completions from the alpha tests ;
(*e*) five analogies from the alpha tests ;
(*f*) ten disarranged sentences from the alpha tests.

Each paper hence contained forty-five questions. Two test papers were compiled, A and B, and both sets were first given to pupils in a school in another area in order to discover whether they were of approximately equal difficulty. It is believed that they are. All the schools in the area were divided into two groups, one group taking the A paper first, the other group taking the B paper at the same time. The tests were conducted by the head teachers simultaneously throughout the area. In each school teachers of certain classes, standard V in most schools, were asked to give special coaching to the pupils of their classes for a fortnight beginning on the day after the first test paper was given. A quarter of an hour a day was all that it was possible to devote to this coaching. During this period the teachers dealt with the questions in the test paper already set to their pupils, discussing with them the methods of solving them. At the end of the fortnight all the pupils, both coached and uncoached, attempted the other test paper. 2,678 pupils took the two papers.

The marks for the four schools, A, B, C, D, are analysed in Table II.

From this table it will be seen that in the arithmetical tests there is an improvement in both coached and uncoached pupils in the four schools, the improvement being greater for the coached than for the uncoached in all the schools except C.

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* The questions used were :—

Paper A. Alpha Tests. Test 2, Nos. 1, 2, 7, 10, 12, substituting English money for American. Test 3, Nos. 1, 3, 10, 13, 15, Test 6, Nos. 1, 2, 3, 4, 5, 6, 10, 12, 19, 20. Test 7, Nos. 5, 8, 16, 17, 39. Test 5, Nos. 5, 8, 11, 12, 13, 14, 17, 23 ; Form 7, Nos. 1, 22. Burt's "Reasoning" Tests, Nos. 8, 13, 14, 17, 19, 22, 27, 34, 41, 46.

Paper B. Alpha Tests. Test 2, Form 7, Nos. 1, 2, 7, 10, 12, substituting as in A. Test 3, Form 6, No. 3. ; Form 7, Nos. 1, 16 ; Form 9, Nos. 11, 14. Test 6, Form 6, Nos. 1, 2, 3, 4, 5, 7, 12, 16, 18, 20. Test 7, Nos. 16, 33 ; Form 7, Nos. 13, 21, 32. Test 5, Form 6, Nos. 1, 3, 5, 11, 12, 16, 19 ; Form 7, Nos. 19, 23 ; Form 9, No. 21. Burt's " Reasoning Tests," Nos. 9, 12, 15, 16, 18, 23, 31, 36, 40, 47.

The Alpha Tests are published in Mental Tests in the American Army, Yoakum and Yerkes, pub. Sidgwick and Jackson.

Burt's Tests may be found in *The Journal of Experimental Pedagogy*, Vol. 5, No. 2 ; or in Ballard's " Mental Tests."

TABLE II.
Showing effects of Coaching.

	A.		B.		C.		D.		School.
	Uncoached.	Coached.	Uncoached.	Coached.	Uncoached.	Coached.	Uncoached.	Coached.	
	63	32	85	146	132	50	106	72	No. of Pupils.
Arithmetic 5 items.	161	108	239	608	350	174	346	307	Total items correct, 1st Paper.
	208	155	264	761	446	188	353	338	Total items correct, 2nd Paper.
	47	47	25	153	96	14	7	31	Total gain.
	.8	1.5	.3	1.0	.7	.3	.0	.4	Average gain per Child.
Reasoning 10 items	253	178	311	722	502	263	456	393	Total items correct, 1st Paper.
	295	184	304	934	663	220	564	452	Total items correct, 2nd Paper.
	42	6	–7	212	161	–43	108	59	Total gain.
	.7	.2	.0	1.5	1.2	–.9	1.0	.8	Average gain per Child.
Practical judgment 5 items	111	104	130	340	227	131	307	229	Total items correct, 1st Paper.
	163	120	174	504	322	155	324	266	Total items correct, 2nd Paper.
	52	16	44	164	95	24	17	37	Total gain.
	.8	.5	.5	1.1	.7	.5	.1	.5	Average gain per Child
Arithmetic Series : completion 10 items	153	181	0	184	64	24	309	190	Total items correct, 1st Paper.
	179	242	127	1066	593	262	366	532	Total items correct, 2nd Paper.
	26	61	127	882	529	238	57	342	Total gain.
	.4	2.0	1.5	6.0	4.0	4.8	.5	4.8	Average gain per Child.
Analogies 5 items	44	54	37	151	100	46	230	161	Total items correct, 1st Paper.
	94	76	62	499	166	122	215	238	Total items correct, 2nd Paper.
	50	22	25	348	66	76	–15	77	Total gain.
	.8	.7	.3	2.4	.5	1.5	–.1	1.0	Average gain per Child.
Dis-arranged Sentences 10 items	275	202	176	846	612	297	637	487	Total items correct, 1st paper.
	422	242	299	1039	780	370	721	625	Total items correct, 2nd Paper.
	147	40	123	193	168	73	84	138	Total gain.
	2.3	1.2	1.5	1.3	1.3	1.5	.8	1.9	Average gain per Child.

In the reasoning tests with the exception of school B the uncoached improve more than the coached. This result is remarkable and shows clearly that these tests are less affected by the coaching given than any of the other tests.

In the practical judgment tests there is improvement in both coached and uncoached with little difference between them.

In the completion of arithmetical series the effect of coaching is marked, especially in school B.

In the analogies test with the exception of school A improvement is greater for the coached pupils than for the uncoached.

In the disarranged sentences test, school A shows greater improvement for those uncoached, school B little difference between coached and uncoached, though a slight gain for both on second performance, school C similarly, and school D shows greater improvement for the coached than for the uncoached.

If the results are pooled for the four schools the figures are for tests (*a*), (*b*), (*c*), and (*f*) together :

386 uncoached pupils gain 1,209 items, making average gain 3.1.
300 coached pupils gain 1,164 items, making average gain 3.9.

This shows a slight gain of .8 items per pupil in favour of those coached.

For tests (*d*) and (*e*) taken together the corresponding figures are :

386 uncoached gain 865=2.2 per pupil average.
300 coached gain 2046=6.8 per pupil average, a gain of 4.6 items per pupil in favour of those coached.

But taking the figures separately for the four schools we find that taking tests (*a*), (*b*), (*c*) and (*f*) together :

School A, uncoached gain 4.6 per pupil ; coached 3.4.
School B, uncoached gain 2.2 per pupil ; coached 5.0.
School C, uncoached gain 4.0 per pupil ; coached 1.4.
School D, uncoached gain 2.0 per pupil ; coached 3.7.

In tests (*d*) and (*e*) taken together the gains are :

School A, uncoached 1.4 ; coached 2.6.
School B, uncoached 1.8 ; coached 8.4.
School C, uncoached 4.5 ; coached 6.3.
School D, uncoached .4 ; coached 5.8.

These figures are interesting as apparently in school A there is little improvement as a result of coaching, while in school B there appears to be great improvement. The other variations are also striking. They raise the question of the significance that can be attached to them. Before making any suggestion on this point it may be worth while to give a summarised result for the whole of the pupils in the area arranged by sex and age. In dealing with the gains the difficulty arose of comparing the gains of pupils who obtained nearly full marks in the first test with the gains of those whose score in the first test was low. Obviously the former could only gain a few marks while the latter could show a great improvement. I decided therefore to measure the gain as a percentage of the possible gain. If a pupil obtained 40 marks in the first test and 42 in the second he gained 2 out of a possible gain of 5, as 45 was the total score possible in each test, while a pupil scoring 5 in the first test and 10 in the second made a gain of 5 out of a possible 40. The first gained 40% of his possible gain and the latter 12.5%.

There may be serious objections against this method of comparing improvement, but it appears to me to be fairer for the purpose of comparison than comparing actual gains irrespective of the score in the first test.*

The figures for the whole area are given in Table III.

TABLE III.

Showing effect of Coaching for all pupils.

Age.			Total marks in		Average per pupil.		% improvement.
			1st test.	2nd test.	1st test.	2nd test.	
Girls	13	Uncoached	7939	9068	26.5	30.3	20.5
		Coached	650	899	19.1	26.4	28.7
	12	Uncoached	4635	5374	22.6	26.2	15.7
		Coached	1485	1885	22.5	28.5	26.6
	11	Uncoached	3044	3929	16.4	21.2	16.8
		Coached	3492	4930	22.0	31.0	39.1
	10	Uncoached	3431	4739	11.9	16.4	10.4
		Coached	1863	2611	22.2	31.1	39.0
Boys	13	Uncoached	8756	9779	29.3	32.8	22.3
		Coached	1109	1809	17.7	29.2	42.1
	12	Uncoached	5228	5845	26.3	29.4	16.6
		Coached	2484	3903	19.6	30.7	43.3
	11	Uncoached	3554	4169	18.4	21.6	12.0
		Coached	3616	5428	20.7	31.0	42.4
	10	Uncoached	3015	3778	14.0	17.6	11.6
		Coached	1717	2519	21.7	31.9	43.8

On the basis of these figures one can safely assert that in the case of the particular test paper used there is a marked effect of coaching and this although the coaching was limited to the short period of fifteen minutes a day for nine days. It is noteworthy also that the younger coached pupils improve more than the older ones. This is no doubt largely due to the fact that the average age of the coached pupils was 11 years 9 months, so that pupils aged 12 to 13 or 13 to 14 represent the duller section of those coached if the school grading is satisfactory. On the other hand the ten year old coached pupils represent children slightly above the average.

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* I shall be glad if any reader can suggest a better method of comparing improvement.

This is reflected in the average marks for the first test. The uncoached ten year old boys for example average 14 marks per pupil representing those ten year old boys who are not in standard V, while the ten year old boys who are in standard V average 21.7 in the same test.

In passing it may be interesting to tabulate the average scores for all pupils in their first test paper, counting one for each of the forty-five items correct.

The figures are :—

Age	10.5	11.5	12.5	13.5
Score	14.2	19.0	22.6	25.7
Standard deviation	8.9	9.9	9.6	9.4

In comparing these figures with those obtained by Dr. Burt it should be noted that whereas mine refer to the forty-five items including the alpha tests selected, his refer only to his fifty graded reasoning tests.

His figures are :—

Age	10.5	11.5	12.5	13.5
Score	24	30	36	42
Standard deviation, boys	7.5	6.8	5.7	4.9
,, ,, girls	8.1	7.3	5.4	5.3*

It will be noted that some explanation appears to be required for the extremely high standard deviation obtained in my investigation. The explanation appears to me to lie partly in the fact that in the area investigated by me no special provision had been made for mental defectives and partly in the fact that few of the pupils attending elementary schools in the area are withdrawn in order to attend secondary schools, of which there were none in the area.

The presence of these defectives at one end of the scale and of better pupils at the other end increases considerably the scatter of marks about the mean. It may be possible at a later date to give the results excluding both the mental defectives and the normal proportion of the better pupils.

To return to the main problem. The high percentage improvement of those coached compared with those uncoached is found to be compatible with considerable differences when the figures for the different schools are compared. As the numbers of pupils in the coached and uncoached groups are most nearly equal in the eleven year group, it will be sufficient here if the figures for the various schools are given for that age group only. In this table, No. IV, the improvement is measured as before as a percentage of the improvement possible.

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* *Journal Exp. Ped.*, Vol. 5, No. 3, p. 121.

TABLE IV.

Showing variation in effects of Coaching in different Schools.

	Uncoached.			Coached.		
	1st test.	2nd test.	% improvement.	1st test.	2nd test.	% improvement.
Boys' Schools.						
I	17.5	22.6	19.	16.4	29.8	46.
II	10.8	12.7	5.5	16.4	27.4	38.8
III	8.6	11.4	7.6	20.6	32.4	48.0
IV	13.0	15.2	7.0	20.0	33.4	55.
V	14.7	20.0	17.	25.9	36.3	54.
VI	18.9	20.0	4.	31.6	32.1	4.3
VII	20.5	24.0	14.5	18.5	28.2	36.
VIII	27.6	31.8	24.	*nil*	*nil*	*nil*
IX	20.9	24.7	15.	17.1	32.2	54.
X	27.0	29.4	13.	21.2	27.8	27.
XI	34.9	41.3	63.	37.6	40.1	34.
Girls' Schools.						
XII	16.8	21.7	17.	20.3	32.2	48.
XIII	14.4	17.7	11.	17.5	25.7	30.
XIV	13.2	20.9	24.	19.6	26.7	28.
XV	10.4	14.9	13.	23.2	37.1	63.
XVI	8.3	11.3	8.	22.3	35.7	58.8
XVII	25.3	25.7	2.	26.5	34.1	41.
XVIII	13.0	18.1	16.	12.0	25.8	42.
XIX	22.7	26.4	16.	*nil*	*nil*	*nil*
XX	25.0	27.0	10.	33.3	37.7	37.
XXI	14.5	19.4	16.	17.4	30.1	46.
XXII	34.5	39.1	42.	37.8	35.6	–6.
XXIII	11.2	18.0	14.	24.8	32.5	38.

From this table three important facts can be discovered :—

(1) That there is an enormous variation in the performance of pupils of the same average age in the first test, the uncoached boys in the first test varying from an average score of 8.6 in school III to an average score of 34 in school XI. The standard deviation for the uncoached boys is 7.5. This variation would perhaps not be striking if it were between individuals, but when it is remembered that it is variation of average performance in different schools in one homogeneous area one is forced to believe that, as was suggested in the first part of this paper, the nature of the general teaching in the schools plays a larger part in determining results than is generally held.

(2) That though both uncoached and coached pupils show improvement in the second test the improvement for those specially coached is, as might be expected, much greater than for those uncoached.

(3) That there is great variation in the average amount of improvement in the different schools, the range of improvement being for coached boys from 4% to 55%, and for the coached girls the figures range from a loss of 6% to a gain of 63%. The average gains and standard deviations are :—

	Average Gain.	Standard deviation.
Uncoached, Boys	17.0	15.6
,, Girls	16.0	9.4
Coached, Boys	38.0	15.0
,, Girls	40.0	17.5

The high marks of the pupils at schools XI and XXII, which were the boys' and girls' departments of one school, were so exceptional that I interviewed the head teacher and discovered from him that for the last few years he had personally taken the various classes in the school for the purpose of trying to train the pupils in thinking and reasoning and had used for this purpose a number of intelligence tests as well as questions of his own devising. At one time or another all the various types of tests used in my investigation had been utilised by him. None of the examples used in my papers had been taken by him with his pupils for a considerable period, probably months prior to the date of my tests, though it was impossible to ascertain exact dates. He suggested that the poorer results of the coached girls in the second test might be due to the fact that he had ceased to take them for the fortnight and had instructed the class teacher to coach them and that it might be that some methods of coaching were more effective than others.

The extremely high average reached by the pupils in this school is, in the absence of other special conditions, presumptive proof that it is possible to coach pupils so that their performances in the intelligence tests used in this investigation are very much higher than in schools where special coaching has not been given. I may add that in a test early in this year, 1924, in which all pupils between the ages of 10 years 9 months and 11 years 6 months were tested mainly in school subjects, the pupils of this school again showed their superiority over those in other schools in the area. I have visited the area and, judging from the homes of the pupils, the appearance of their parents, and the nature of their employment, there appears to be no social advantage in favour of this school. Other head teachers in the area confirmed my judgment in this respect.

For the sake of those who may be interested in comparing the improvement in each of the six types of tests the following summary for the whole of the pupils tested is given :—

Number tested, 2,678 pupils.

Percentage improvement as % of possible improvement.

Uncoached.	Coached.	Nature of Test.
16.2	33.3	Arithmetic.
9.6	5.6	Reasoning Tests.
12.2	31.4	Practical judgment.
17.1	59.8	Arithmetic Series.
10.8	39.2	Analogies.
21.0	40.2	Disarranged sentences.

The figures on which this summary depends are so complex that no attempt will be made to discuss them in this paper. It is, however, noteworthy that Dr. Burt's Reasoning Tests are least affected by the coaching given in these schools.

CONCLUSIONS.

The evidence summarily presented in this paper appears to support the following conclusions :—

I.—*General Training.*

(1) That general methods of teaching vary in the opportunities and stimuli they offer to the exercise of general intelligence.

(2) That performance in intelligence tests is affected by the nature of the general methods of teaching.

II.—*Special Coaching.*

(1) That special coaching has a marked effect on performance in such intelligence tests as were used in this investigation.

(2) That the nature of the effect depends partly on the method of coaching, though this problem requires further investigation.

(3) That the nature of the effect depends partly on the nature of the test, improvement being most marked in the case of the Arithmetical Series; the Reasoning Tests being least affected, though in this case also the problem requires fuller investigation in view of the great variation between schools in all the tests.

In presenting this summary the author is aware of many defects of method which weaken to an unknown degree the force of his conclusions. The circumstances under which he was able to give the various tests prevented him from giving a short preliminary warming-up test and from carrying out some of the tests in the way in which their author meant them to be carried out. For instance it was necessary to select a few only of Dr. Burt's reasoning tests and to give these as written tests instead of as oral tests. At the same time he believes that the evidence is compatible with the view that not only does general intelligence mature as is shown by the better performance with increased age, but that its growth may be aided or hindered by environmental influences, including the general teaching in our schools.

Though seeds of the same species differ in innate vitality it is certain that the nature of the environment is largely responsible for the vitality of the plant at various stages of its growth. Similarly it may be that the degree in which intelligence is manifested at the various stages of the lives of individuals, differing in innate intelligence, is more dependent upon the opportunities and stimuli afforded by their environment than upon initial innate intelligence, though, of course, no one would deny that this innate ability has an effect.

But further inquiries are necessary.

The value of intelligence tests as a measure of the degree of intelligence present at the time of testing is, of course, great, and my evidence is compatible with the view that for this purpose the tests are extremely valuable. One is, however, tempted to use the evidence presented in this paper to emphasize the importance of training teachers to adopt the best methods of teaching. If, as the evidence tends to show, methods of teaching have a marked effect on performance in such tests as those used in these investigations, then we must assume that in many cases our pupils are not being trained to the utmost in respect of the abilities they have innately, and the use of such tests as a measure of inborn ability is scarcely justified, since the effect of teaching, apart from special coaching, is greater than one expected.

In conclusion I wish to acknowledge with gratitude the helpful criticisms of Dr. Burt and Professor Valentine, who read the original typescript, and the whole-hearted assistance of the many head teachers and staffs without whose help this investigation could not have been undertaken.

Religious Teaching and Civics.

By HELEN M. WODEHOUSE.

I HAVE to write on this subject from the point of view of the interested outsider. I have taught subjects connected with religion, but almost exclusively to persons over eighteen, and I have never taught civics. This paper therefore must be a theoretical survey, offered to experts who will know in far more detail the kind of thing which, with each age of pupil, can finally be done.

There seem to be three chief points worthy of discussion. Religious teaching usually aims at giving some history and some philosophy, and for the rest, at giving inspiration. How will each of these aims fit in with the teaching of civics, and the purpose of making intelligent and conscientious citizens of an earthly state? Let us take each in turn, and begin with the history.

Our source-book for religious history, in the lessons of an English school, is almost always the Bible. Can we use it also as a source-book for civics? Two conditions will be necessary. We must use the Revised Version when we take the Old Testament, and when we study single Old Testament books it is helpful if we can supplement the Revised Version by some recent translation from a corrected text. And we must recognise frankly and explicitly the long process of development which has given us these books, and the different levels of value in their different strata. If these two conditions are satisfied, we are placing before our pupils a collection of documents of the greatest historical interest, in which they may study the growth of a civilisation.

No doubt that growth is presented from a specialised point of view. Our documents were partly written and partly edited by men whose strongest interest lay in the history of certain theological ideas and of certain points of technical morality. Some of these points, such as the abolition of the use of images in worship, are not of direct civic importance. Others, such as the struggle against religious prostitution, have very great importance of that kind, but cannot be used much in teaching children. There remain certain ideas which are both important and also (I should think) suitable for use with intelligent boys and girls.

All through the Old Testament, for instance, we have pictures of international relations. Sometimes they show us broils such as those of little States to-day in the Balkans. Sometimes it is the underside of imperialism. " In Hosea, or Daniel, or Revelations, or almost any of the scriptures of that tiny East-Mediterranean people who were incorporated into all the ancient empires in succession, we can feel the tension which ultimately broke up the systems of Nineveh and Rome."* (The thought is developed in Gilbert Murray's most moving and impressive essay on " Satanism and World-Empire," which ought surely to be read by every schoolboy in England.) Israel in the ancient world was sometimes a Belgium, sometimes an Ireland, sometimes a Bulgaria.

Along with these pictures we find international ethics, and patriotism, of the most various kinds. Some are crude enough, as in the Joshua and

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* Graham Wallas: " The Great Society." P. 10.

Judges stories which so many authorities have thought suitable for Standard II. Some are rough and fine, as in Isaiah's characterization of the diplomatic proceedings of his day :—

> " Hear the word of the Lord, ye scornful men, that rule this people which is in Jerusalem. Because ye have said, We have made a treaty with death, and with hell are we at agreement ; when the overflowing flood shall pass through, it shall not come upon us ; for we have made lies our refuge, and under falsehood have we hid ourselves ; therefore thus saith the Lord God. . . . The hail shall sweep away the refuge of lies, and the waters shall overflow the hiding-place. And your treaty with death shall be disannulled, and your agreement with hell shall not stand ; when the overflowing flood shall pass through, then ye shall be trodden down by it. . . . Morning by morning shall it pass through, by day and by night ; and it shall be nought but terror to understand the message. . ."

We certainly find no solid support for " My country right or wrong," which an American advertisement during the war quoted as the true heart's expression of " every red-blooded American." We sometimes find instead, passed down through twenty-five centuries, " I myself will fight against you with an outstretched hand and with a strong arm. . . . I have set my face upon this city for evil, saith the Lord."

Indeed the very remarkable idea of monotheism has plenty of serious implications for any nation that is prepared with Jeremiah or with Amos to take it in bitter earnest. " Are ye not as the children of the Ethiopians unto me, O children of Israel? saith the Lord. Have not I brought up Israel out of the land of Egypt, and the Philistines from Caphtor, and the Syrians from Kir ? " Or if they try to soften its edge with the thought of being the chosen people, the same stern preacher will show them the edge of that thought also : " You only have I known of all the families of the earth : therefore I will visit upon you all your iniquities." When the visiting should be over and the trial drawing to an end, " double for all her sins," one could perhaps look forward to a sunrise in the future when the glory of all nations should be carried to Jerusalem, and Zion should stand as mother of the whole earth. Yet for a later monotheist (in Isaiah 19) there rises, even above the gleam of this spiritual empire, the brotherliness of a larger vision :—

> " In that day shall Israel be the third with Egypt and with Assyria, a blessing in the midst of the earth : for that the Lord of hosts hath blessed them, saying, Blessed be Egypt my people, and Assyria the work of my hands, and Israel mine inheritance."

And still there is one step more, by which kingship and brotherliness are both transfigured in the picture of the martyr nation ; the chosen of the Lord, by whose stripes the world is to be healed. We have taken many of the figures to ourselves. " Thou art my servant," we hope God says to us, " England, in whom I will be glorified." " It is too light a thing that thou shouldst be my servant to raise up the cities of England. . . I will also give thee for a light to the Gentiles, that thou mayst be my salvation unto the end of the earth." They are the very phrases of our Imperialist poets. Is this then the test of our imperialism? —the question whether our White Man's Burden can be read in terms of the Servant Songs?

Probably children will not make these connections for themselves, even where the subject-matter is less difficult than it is in the passages just referred to. Without special training, they may sometimes read the clearest passages on social morality and never notice that social morality is being considered. I have read with Standard IV the first chapter and a half in Amos, with its resounding catalogue of man's inhumanity to man, and when at the end I have asked what sort of wrong-doing the prophet is speaking of, Standard IV has replied unanimously, "Worshipping idols." At first at any rate we as teachers must make the connection with our own problems; and of course we must not make it in such a way as to throw Standard IV back upon another of its stock ideas, "This is meant to teach us . . ." I mean that in connecting Amos with our own history we must not divorce him from his own; making Bible teaching unreal for the sake of reality in civics.

So far my illustrations have been taken from international relations. But there is also the problem within the nation, of raising up the cities of Jacob and gathering together the outcasts of Israel. And the Bible gives us many opportunities for touching on this problem in Israel's life and in ours.

There are the difficulties with which reformers are struggling throughout the history of nearly every nation, when they try to secure administration of justice as between rich and poor. Do not the partial judges in Amos and Isaiah and the Psalms look extraordinarily like the magistrates in Mr. and Mrs. Hammond's book on the "Village Labourer"? And have we to look further than Judge Parry on "The Law and the Poor" to see the needy being turned aside from their right? It is not my business here to deal with particular difficulties in the teaching of civics, any more than with particular difficulties in the teaching of religion; but of course I am not suggesting that we shall simply point a moral and preach a sermon—rather that we should help our pupils to realise if possible how easy it is for things to go wrong in this way. "Ye turn justice to wormwood," says Amos, "ye cast down righteousness to the earth." The man on the Bench may do this from mere wilfulness, but far more commonly it follows on other causes; it happens because he is very busy or rather stupid or not quite well; because the case was obscure and he did not take quite enough trouble with it; because the accused had a bad record and was uneducated and rather insolent. Now how are we in practice to deal with all this? What are the advantages and the disadvantages of having a local man for judge? How will our own invention of the jury system bear on the matter? We want our pupils to envisage the problem, not as a mere contest between wicked men and good men, but as an everlasting puzzle of social arrangements and of human nature, with which humanity has been experimenting from Bible times and earlier, right up to our own.

Then there is the overlapping puzzle of maintaining public honesty: the Bible accusations, brought century after century, of taking bribes and using false weights and committing perjury. We hope we are not as these Orientals were, yet the League for the Prevention of Corruption brings home to us how difficult it is to root out corruption's edges and beginnings. Here again, the less our pupils can think of it as mere abstract wickedness, and the more they can come to realise it as something really very easy to fall into, even for people who feel themselves respectable enough, the better we shall have gained our end. Perhaps a composition written from the point of view of a slightly dishonest tradesman of the seventh century B.C. might throw some light on our own days also.

Or there is the tangle of problems arising from the growing complication of a society ; not the personal fault of anyone in particular, yet bringing the nation into a condition where it helplessly does evil in the sight of the Lord. There is scarcely a prophetic or legal book which does not touch on the debtor-and-creditor relation and the abuses which may come of it. What is their solution, and what is ours? What have we to say about the big landlords, who " join house to house and lay field to field, till there be no room " ? Was this always a bad thing, or would we justify it ?* Half a chapter in the book of Job describes in the most modern way the rise of a proletariat—I take the analysis from Professor Moulton's " Literary Study of the Bible," p. 37 :—

" He commences with the encroachments of private ownership upon the common land :—

' There are that remove the landmarks. . . .
They turn the needy out of the way.'

There is consequently the formation of a class of the poor, who are either driven to the barren regions or become a mere labouring class without rights in the land of the community.

' The poor of the earth hide themselves together :
Behold, as wild asses in the desert
They go forth to their work, seeking diligently for meat ;
The wilderness yieldeth them food for their children . . .
They lie all night naked without clothing,
And have no covering in the cold.
They are wet with the showers of the mountains,
And embrace the rock for want of a shelter.'

Poverty, Job sees, necessitates borrowing, and the fresh distress that is its natural sequel.

' They violently take away flocks and feed them,
They drive away the ass of the fatherless,
They take the widow's ox for a pledge.'

Poverty is seen side by side with wealth, forced into close relationship with it that increases the distress of want.

' They cut his provender in the field,
And being an-hungered they carry the sheaves ;
They make oil within the walls of these men ;
They tread their wine-presses, and suffer thirst.'

As a next stage we get the crowding of population in cities, with hints of fresh distress and turbulence.

' From out of the populous city men groan,
And the soul of the wounded crieth out,
Yet God imputeth it not for folly.'

The climax comes in the formation of a purely criminal class.

' These are of them that rebel against the light ;
They know not the ways thereof,
Nor abide in the paths thereof.
The murderer riseth with the light,
He killeth the poor and needy ;
And in the night he is as a thief . . .
In the dark they dig through houses ;
They shut themselves up in the daytime,
They know not the light.

For the morning is to all of them
As the shadow of death ;
For they know the terrors of the shadow of death.' "

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*Prov., 28, 3. " A *needy* man that oppresseth the poor is like a sweeping rain which leaveth no food."

The social difficulties of class-relationships in the Bible are not quite the same as ours, for more than one reason. Their organisation was simpler than ours, even in its most complicated days, and men's criticisms of it were simpler. They condemn abuses, but do not suggest much reconstruction in the system itself. The small farmer Amos denounces the rich north countrymen as drunken and self-indulgent bullies; Isaiah, the man of family, hopes for a time when no ungentle person shall be called a gentleman; but it is assumed that gentlefolk and poor men will continue. And the bitterness of later Psalms against "the rich" is perplexingly mixed up with religious difficulties. Yet could we perhaps use them at any rate for rich children, as some reminder of the dreadful bitterness produced by mere bad manners when these are shown by the man who has the advantage?—"The profiteers are laughing at us." "They grin like dogs and run about the city."

> "When the Psalms were written, whether in the name of the individual or of the nation, it was *real* wrong and oppression that stung him to the heart, and *real* faith that made him rest his hopes of deliverance upon Jehovah. . . Even in Psalms which seem to express vindictive hatred, wholly unfit for Christian lips, such as cix, we can now understand the furious wrath of the proud free-born Jew who brings his cause to the courts of justice and gets insults and curses instead of redress. But even here he turns to God, 'Let them curse, but bless Thou.'"*

We must include also the other side of prophet and psalmist. We have not only their rebukes and warnings, but their hopes and ideals. Could Biblical eschatology be presented in some connection with later visions of Utopia? The details are different, but we are hoping here not for civic instruction in detail, but for broad ideas, large interests, and the right attitude. I believe that civic interest for imaginative youth may often begin not in details nor even in facts, but in romance. Certainly it began for me when I read William Morris. If for some purposes, then, we need poetry rather than statistics, can we not use Biblical poetry as well as the rest?

In all our teaching, but especially in this part, I suppose that we shall connect freely all through the Bible. We shall take our poetry where we find it. Isaiah under a monarchy describes a king who shall come, wise and discerning, faithful and strong—"with righteousness shall *he* judge the poor." Paul under the Empire describes a little helpless community within it, in which the pulse of life beats so strong that if one member should suffer all the rest suffer with him. The fourth Gospel gives us the inward meaning of that life spread throughout the world. "I am the vine, ye are the branches."

If I have not said more of the civic interest of the Gospels, or of that champion of the poor and ignorant who is their hero, it is because I do not expect that any teacher has anything to learn about it from me.

But one other use of the Bible may be mentioned before we leave its position as a text-book of history—indeed, it has implicitly been touched on already. This collection of documents exercises all our powers of imagination for entering into different persons' points of view. We have the poor scribe in the Psalms, and the weary aristocrat in Ecclesiastes. We have Micah on the one hand, Haggai and Malachi on the other; the author of Deuteronomy; Ezekiel and Jeremiah; the Song of Deborah and the Song of Solomon. If we have learnt to enter into sympathetic understanding with persons as different as these, we have not a bad bit of preparation for civics.

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* M. Bramston.

Passing from the more historical side of Bible study, let us ask whether the religious lesson will give opportunity for teaching any parts of philosophy that bear on civics. We criticise the detachment of education from life, but religion should be the least detached of all subjects. From its history, it can claim to touch on almost any part of life and of the world. Religious philosophy began as a complex of science, custom, law, ethics, and divinity. Special departments have been separated out, yet no philosophy wholly loses touch with its offshoots, and it may reclaim them in the end. The Bible may serve as a philosophical text-book as well as a source-book for history, and these Greek and Hebrew documents are much more closely connected with English popular thought than (I suppose) most Anglo-Saxon documents would be.

If religion is so closely bound up with the rest of life, then bad teaching may do more harm here than in most subjects. Yet on this side we can hardly escape by avoiding teaching, since men may avoid learning history, but they can hardly avoid forming and using philosophies. We know in how many ways in the past a defective religious philosophy has actually hindered civics and citizenship ; lending the sacredness of religious sanction to faults that were common to human nature. The early prophets found drunkenness, prostitution, and murder adorned and shielded with the halo of religion. Since then we have known the same halo round cruelty in warfare, persecution for belief, vindictive punishment, slavery. Religious philosophy, good or bad, will have something to say about most parts of the conduct of life. We had better try to make it good. And because it reaches so far, we can concentrate on any part that we think important.

I suggest that in religious teaching we can bring in discussions of almost any question of ethical and civic philosophy. The age of our pupils will set limits, but the nature of the subject seems to set hardly any limits. Both by its history and by its intrinsic nature it allows us to connect it with almost any piece of civic theory.

For instance, the prophets speak continually of "righteousness" in the objective sense ; "public right," "justice." This is very similar in form to the "justice" and "rights" which take up so much room in English political philosophy. How far is the matter the same ? It is closely connected also with that idea of what is fair which plays so great a part in the life of every community, not least a community of children. If the pupils are old enough, and if the teacher knows enough of ethics, might he not take this opportunity to discuss a real political idea with a long history—the idea of justice and of rights ?

Again, the prophets and historians deal frequently with ideas of reward and punishment. Could not an intelligent class be interested in some of the theory of punishment, public and private ? What are the aims of a Government in punishing criminals, and how far have means been adapted to those aims ? Or indeed why should he not discuss the theory of government as such—government of a nation and self-government by a nation ? Few topics could be closer to the subject-matter of much of the Bible.

Some tempting parts of philosophy will be irrelevant here, as being metaphysical rather than civic. At any rate in dealing with them we should have to study too much metaphysics before we got back to civics again. But we might be allowed some discussion of the general theory of values and the meaning of good. No great religious work can leave us with the notion that the whole of life is summed up in morals in the narrow sense. I remember being occupied as a child with the statement thrown out by an elder that a labourer's child would grow up no better or happier for studying poetry at school. The parable of the talents, if no other, might have some bearing on this. Children perhaps are not so liable to be confused about it as grown-ups may be, if only because " being a good child " includes doing your lessons well, whilst " being a good man " (and still more " being a good woman ") may leave your brain almost unoccupied.

Might the same parable and philosophy found in other parts of the Bible bear also on this passage, which I take from a student's paper : " The chief end of man is to develop the Godlike in man. Many people say that we cannot see the Godlike in man. As a rule business men do not show their Godlike character when they are occupied with their daily tasks ; but they have deeper feelings and thoughts which show themselves at home." I suggest that good religious teaching might clear up some of these ideas.

Beyond the detailed teaching, I should hope something from the habit and ideal of philosophical thought, which the religious lesson amongst others seems to give a chance of inculcating. Some of the great obstacles to citizenship lie in lack of penetrative imagination, lack of wish to appreciate other points of view than one's own, confused assumptions, tyrannous public opinion. Any sort of philosophical teaching rightly given should strengthen the disposition to analyse and the wish to understand ; not as mere habits but as conscious ideals. Good philosophy, even apart from detail, should not only awaken questions in the young, but should give them some idea how to look for answers. " What is familiar and fundamental," says Bosanquet, " appears, for that very reason, to evade precise perception. The great philosophers . . . are just those who have succeeded in discerning the great and simple facts." The religious lesson amongst others might enable us to set young feet in the first beginnings of these paths.

On the other hand, we have to remind ourselves all the time of what bad religious teaching may do as regards the habit of philosophy.

History and philosophy we have dealt with. What of our third subject, " inspiration " ? Religious teaching will hardly be thought successful unless it has done something to help its pupil to be a religious man. Why should a religious man be more likely than another to be interested in civics and citizenship ?

If religious philosophy began as a complex of many elements, so did the whole of religion, and much of that unanalysed complex still remains in full power. Such phrases as " a Christian upbringing," or " the Quaker tradition," cover a great deal of civics and morals and culture as well as personal devoutness. Or, taking a more civic name, think how many elements are bound up together in " parish work." In religious training we are often passing on an elaborate complex of this sort ;

not purely a logical chain, but a mass of associations. Apart from pure logic, the strengthening of one part of this mass is likely to strengthen other parts, provided that the whole is attractive. Just as cleanliness may help honesty, if both are bound up under the concept of "being respectable," so an increase of devoutness may help civic service if both are bound up under a concept of Christian living. Naturally if the whole is *not* attractive it will weaken its parts. A child unwisely brought up may react against respectability and Christian living, and therefore against everything he has thought of as belonging to them.

Besides the general strengthening of an undivided complex, are any other effects on civics finally to be hoped for from the deepening and clarifying of religious experience? If we have not many words to say it is not because the subject is unimportant but because it is so difficult and so inexhaustible. What is the special contribution of religion to citizenship?

When mediæval writers drew up their classification of the virtues, they began with Aristotle's catalogue, and added to it, as specially religious, one early Christian list: Faith, Hope, Charity.

(*a*) Faith has many meanings, but the central meaning may perhaps be rendered as coming into touch, and keeping in touch, with the reality of life. We know this coming into touch as a most characteristic element in religious experience. One convert after another in every century searches for comparisons: it is like the illumination of sunrise, like the solidity of rock; it is finding our feet; finding our way. And life without it, on the other hand, is groping in the dark, wandering in the wilderness; it is like the light air parted by a bird's wings. This is not specially civic; the particular form of the essential difference varies according to the mind concerned, and its circumstances, and its century. But certainly one possible form is the difference between the good and the bad citizen. One part of the world which the sunrise lights up may be the community in which we live, and we find our place and our way in it.

Beyond the first coming into touch, we have in faith the persistent keeping in touch, the holding fast what we have found—being faithful. Here indeed is a necessary part of citizenship; the will that goes beyond impulse and almost beyond desire; the central adjustment that keeps things going when the local incentive hardly exists. I met a man who was going a long journey home in the middle of his holiday in order to vote in an election for the side that could not possibly win, and it struck me as an extraordinarily religious act in a small way.

(*b*) The religious man strikes hands with reality—"spirit with spirit shall meet"—and then spirit shall trust spirit. The second virtue is Hope. I should like to quote the whole of two or three essays in Dr. Bosanquet's golden little book on "The Civilisation of Christendom," but I will quote one passage only:—

> "We can hardly realise the depth of the change by which this Christian doctrine initiated the belief in development, so characteristic of the modern world, unless we compare the timid social ideas of the wisest Greeks with the audacious metaphors which were the first that occurred to the Galilean peasant. How to avoid revolution; how to perpetuate the original wisdom of the founder; how to maintain a political equilibrium, the least derangement of which will be ruinous: these are the preoccupations of Plato and Aristotle in their studies of society. But in the New Testament we have, at once, a different set of ideas. The use of organic metaphors

must strike every reader. The operation of a ferment, the growth of corn or of a tree, are the illustrations that from the first occur to the speaker. Thus the future is quite differently regarded ; not as the painful preservation of equilibrium, but as a free and natural growth towards perfection. . . . The revelation being immanent and continuous will always be present ; therefore there is no anxiety, the new principle can take care of itself."

(*c*) Faith, Hope, and Fraternity. I suppose one of the greatest of all the obstacles to citizenship is the quasi-hatred of his neighbour in the natural man ; the elementary irritability which does not want people to be there. (My dislike of all the crowd round me used to be my chief stumbling-block in prayers at school.) The old man dies, and the new man of fraternity is born, in every piece of actual good life ; in friendship and the love of individuals, in all kinds of co-operation, and, on the furthest level, in religious experience. Some modern doctrines have explained the whole of religion as a development from " group-feeling." I think the teaching is mistaken, yet it covers a great truth. It is most true that the characteristic of religion is to break down our little lives into a bigger one, and that the life thus lost only then becomes our own.

The religious man, if anyone, should be a citizen, since he will know himself and his neighbours as members not only of the kingdom of England or of Prussia, but of the " kingdom of ends " and the kingdom of heaven.

Notes on the Interpretation of Correlation Measures.

By E. R. HAMILTON.

1. It is often wise to withhold criticism of a new method of inquiry until it has had time to show its strength. Such a period of freedom has been allowed, with great benefit to psychological research, to the method of correlation. This method, invaluable to a young science virtually only just passing out of the descriptive stage, like psychology, has been singularly suggestive of useful hypotheses, especially in the field of cognition. But in both the collection and the interpretation of statistical data there are dangers of which not every inquirer who uses correlational methods appears to be aware. In no captious spirit these notes are written to point out some of these dangers and to recommend, *inter alia*, a review of the necessary assumptions and limitations of correlational methods.

2. Values of Correlation Coefficients and Probable Errors. Correlation coefficients, which were formerly somewhat shy of appearing to two places of decimals, now often brazenly strut into the third place.[1] There is every reason why little importance can be attached to the third, and often to the second, place of decimals in coefficients of correlation. If a physicist gives, say, the value of the ratio of specific heats of air at 0 deg. C. as 1·4006, he may be quite wrong, he may have inadequate data for such an accurate measurement. But the conditions of his experiment are exactly defined, he is measuring a definite physical

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[1] Examples :

(*a*) Ethel M. Elderton : " A Summary of the Present Position with regard to the Inheritance of Intelligence." *Biometrika*, March, 1923. Here we have a correlation of intelligence of brothers (Dr. Drinkwater's data) given as ·669±·053. A vague correlation such as that between intelligence and morality of parents is given as –·07.

(*b*) Geo. T. Avery : " Comparison of Stanford and Herring Revisions given to First Grade Children." *Journal of Educational Psychology*, XV. 4. April, 1924. The data were obtained from forty-eight children. The I.Q.'s of the Stanford were correlated with the Herring I.Q.'s (a statistically illegitimate process) and the following correlations were obtained with the Herring Groups A—E :—

	A.	B.	C.	D.	E.
r =	·725	·726	·796	·772	·769
P.E. =	±·046	±·046	±·0356	±·039	±·0398

(*c*) Board of Education. Educational Pamphlet No. 44—" Mental and Scholastic Tests among Retarded Children." 1923. This book is full of spurious (" Index ") correlations, of which these are specimens :

Correlation between Mental Ratio and Educational Ratio for 60 Gipsies=·784±·033,

Correlation between Mental Ratio and Educational Ratio for 36 Canal Boat Children=·715.

constant, and his figures are verifiable.[1] The statistical psychologist is seldom, if ever, measuring a definite constant; *the* correlation, for instance, between A and B cannot be said to exist until A and B are precisely defined, and it is often such definitions that we are *trying to make clearer by means of the correlation measure.*[2] The conditions of the psychological group experiment are defined in part by the nature of the tested group, which may or may not be a typical sample.[3]

The third decimal place in correlations is generally obtained by averaging several correlations. This process is permissible provided the successive tests are strictly comparable in what they may be supposed to measure, but, however many times the measurement may be repeated with one group of testees, it remains a measure descriptive of that group only. The *first* decimal place will frequently be found to be the same with most groups. The moral of this is surely that we should devote our attention at present to the more exact definition of abilities rather than to further investigation into correlation between abilities whose definition is deplorably vague.

It appears to be thought by many that a coefficient of correlation is reliable and significant provided only that the Probable Error is small enough. The Probable Error, for a given value of the correlation coefficient, is a function solely of the number of testees. The significance of a correlation, however, depends upon a number of other factors, some of which cannot be specified numerically :

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[1] The difference between physical and psychical measurements, as far as the possibility of repeating a " same " measurement is concerned, is really one of degree rather than kind. Where the phenomenon measured is completely defined it is convenient to regard differences in measurements of the phenomenon at different times as due to " experimental error "; even in physics careful definition of the conditions of measurement of a variable does not produce absolutely same results. In psychology our variables—even in psychophysics—are always somewhat roughly defined, and therefore differences in the value of a variable, A, as obtained from different measurements, are due to " experimental error " (with A the *same* in both experiments), or to an undefined difference between the A measured in the one case and that measured in the other, or to both these causes.

[2] Thus if A and B, roughly defined subjects, show a high correlation we seek the explanation in some common element: that common element will be less complex than A or B and therefore, it if can be defined, we should seek to measure it by special tests. In that way measurement and definition of A and B are made more definite. It is probable that we ought to seek to measure ability in scholastic " subjects," say A, B, C, etc., not by an A-Test, a B-Test, etc., but by tests of abilities α, β, γ, etc., upon which A, B, ... depend, but which are simpler than A, B. ... We might have $A=\alpha+\gamma+\delta$, $B=\alpha+\beta+\varepsilon$, etc.

[3] Owing to the different tests used, to differences of sampling, of methods of teaching and other factors, we find a considerable variation in, for example, the correlation between " algebra and geometry." A correlation such as ·67 between algebra and geometry (H. G. Stead: " The Correlations between School Subjects," FORUM OF EDUCATION, I. 1) may be appreciably accurate for the group tested, and may be fairly constant for that group with those tests. But the particular number has little significance, except for the tested group, because the measured variables are not defined. We cannot regard measures of a correlation between two " subjects " such as algebra and geometry as approaching, in the hands of successive investigators, a definite value, as we can in physical measurements.

(*a*) The care with which the tests were carried out ;[1]

(*b*) The degree to which the tests used may be regarded as measuring the abilities correlated ;[2]

(*c*) The degree to which it is possible to regard the tested group as a sample of a population over which, from group to group, the correlation coefficient between these two subjects would be normally distributed.

The condition (*c*), in correlations between school subjects, is rarely, if ever, attained, because the scope and treatment of those subjects varies greatly from group to group. Yet, unless r is distributed normally, the " Probable Error " of r is without meaning. Where we may assume that r is normally distributed it is well to state results as $r \pm e$, where $e = 4\ P.E.$ The limits $\pm e$ are those between which 99·3% of the coefficients (obtained under the " same " conditions) should lie. This plan is especially desirable where the results are likely to be read by those not acquainted with statistics, who may be misled by a misnomer such as " Probable Error."[3]

3. CORRELATIONS BETWEEN " ABILITIES."—We commonly define abilities[4] in terms of the nature of the product or output attributed to them. Thus, " algebraic ability " is something, probably dispositional, lying at the back of those forms of thought that lead to the solution of algebraic problems. It is difficult to see how this subject-matter mode of analysis of ability is to be avoided in psychometry, but it is open to several objections that will have to be met some time. First, it is as objectionable as all faculty psychology, of which it is a species, in that it postulates an " ability " as the cause of a certain kind of behaviour observed, and in so doing gives us no more insight than we could get from study of the behaviour itself. Secondly, it creates by definition a one-one correspondence between ability and performance : it implies that if individual A performs a certain act he thereby " displays " the same ability as B does when he performs the same act. This runs counter to

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[1] This is pointed out by H. G. Stead (FORUM, op. cit., p. 27).

[2] With carefully conducted inquiries, (*b*) is the most likely source of difference, apart from radical differences in the tested groups. It may account for much of the difference, for example, between the following correlations between algebra and geometry : H. G. Stead (op. cit.) $r = ·67$; A. R. Crathorne $r = ·52$ (" Report on the Reorganization of Mathematics in Secondary Education," Mathematical Association of America. 1923). Or : Mr. Stead's partial correlation Geom-Arith (Algebra constant) $= ·41$, compared with Dr. Brown's ·23 for the same thing. In spite of this, however, Mr. Stead's and Dr. Brown's results may be said to support the same conclusion, which depends only upon the *rough values* of the coefficients.

[3] It is sometimes thought, for example, that the Probable Error is *the most probable error.* In a normal distribution, of course, the most probable error is zero.

[4] Our definition of abilities depends upon what mode of description of mental facts we adopt—behaviourist, functional, structural, or other. See Geo. A. Coe : " A proposed classification of mental functions." *Psychological Review*, XXII, 1915. The definition of abilities in terms of performance is naturally very prevalent amongst behaviourists and quasi-behaviourists such as Thorndike and many American psychologists. See, for example, Thorndike's " Psychology of Arithmetic " (1922), and Thorndike and others : " Psychology of Algebra " (1923).

the fact that obviously two individuals may act quite similarly yet think differently when so acting. Thirdly, this mode of ability-analysis describes, as equally "due to" abilities, a performance effected mainly by pure habit, such as typing (by an expert typist), and one that is obviously "intelligent" action, such as the solution of a problem.[1] Fourthly, it often leads—mistakenly and unnecessarily, I think—to atomism: algebraic ability is analysed into "ability to solve equations," etc., equation ability into "ability to let x stand for the unknown quantity," and so on well-nigh indefinitely.[2]

These difficulties offer some obstacles to the interpretations of correlations between abilities.

(*a*) Since there is not a one-one correspondence between mental process and performance we have to supplement the performance measures obtained as test scores by

(i) analysis of the processes involved (*i.e.*, in our own minds when we work our tests),

(ii) introspective records, where possible, of the testees. It is not impossible to get some idea of the working of a school testee's mind by judicious questioning; in fact teachers are always doing this. We want to know, not merely what score a testee makes, but *how* he makes it. The solution of an equation may imply considerable power of abstract thinking, or it may merely imply a good memory of a particular kind. Clearly both (i) and (ii) are necessary if we are to interpret correlations in terms of the mental processes involved in the tests.

(*b*) If all abilities associated with "subjects" are complex, any test of such an ability must cover a very wide field.[3] None of the Standard Tests hitherto issued have been wide enough to be regarded as measuring ability in a whole school "subject." If there are no tests that can be said to measure algebraic and geometrical abilities, except in a very rough and ill-defined way, it does not appear as though any published coefficient of correlation between those subjects (or any other school subjects) can have any general value.

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[1] "Abilities," in the plural, has often a different sense from "ability" in the singular. Thus Thorndike, in the Preface to "Psychology of Arithmetic," refers to "those organized groups or hierarchies of habits which we call abilities." But "ability" often implies something that is definitely *not* expressible in terms of habit alone, though it operates through habit.

[2] Since a number is always divisible into an indefinite number of parts, it is very easy, if we are confronted with a number, χ, as a measure of an ability X, to suppose that the component parts of χ measure component parts of X, and this is noticeably the line of thought in some psychometric writings. But X might be an intensive magnitude (*e.g.*, one of sensation), and so be indivisible, yet be expressible by a number.

[3] A general factor may be measured by "*pooling* a sufficiently large number of diverse cognitive operations" (Spearman: "The Nature of 'Intelligence,'" pp. 6 and 351). The same principle suggests that if there is, for example, a general mathematical ability, a sufficiently large number of diverse mathematical tests should give a measure of that ability. In any case, we cannot represent a person's mathematical (or algebraic, or geometrical) ability by a single test score. We could only exhibit such a complex ability by means of a Rossolimo psychogram. Strictly speaking, therefore, it is at present impossible to speak of the correlation of mathematics with, say, English. The only abilities that can, strictly, be correlated are *simple* abilities; all "subject" abilities are complex. Tests of a set designed to measure some broad ability, for which there is a criterion (teachers' estimates have been used as a criterion in some general intelligence tests), should each correlate highly with the criterion, but the intercorrelations between the tests themselves should be as small as possible; *i.e.*, we must have *diverse* tests of the *same* function. See Clark L. Hull: "The Joint Yield from Teams of Tests." *Journal of Educational Psychology*, XIV, 7, 1923.

(*c*) The distinction between the "habit" aspects and "intelligent" aspects of ability is recognised to some extent in such differentiations as that between "mechanical arithmetic" and "arithmetical reasoning" for test purposes. It is a distinction that cuts very deep into the theory of mental measurement, and is allied to the familiar problem of the relation of knowledge to "intelligence." We require more tests of an "intelligence" nature in the various school subjects. In all the tests with which the writer is familiar, relatively mechanical and relatively intelligent performances are mixed up in an inextricable fashion, and this fact adds to the difficulty of interpreting the correlations obtained by the use of such tests. It is important to know to what extent a test tests habit and to what extent it tests intelligence[1] for the further reason that correlations between performances that depend largely upon habit may be different at different stages of development of the habits involved.[2]

4. KINDS OF RELATIONSHIP.—The subject-matter of psychology is the *individual* mind, and the correlational study of groups of individuals is therefore necessarily an indirect psychological method. It is justified largely by the fact that it suggests modes of investigating individuals singly. As soon as we attempt to go beyond the behaviour that our tests actually measure and to interpret correlations in *mental* terms a number of questions arises.

(*a*) Physical variables tend to correlate to a very high degree.[3] Why do psychical variables correlate so much less than do physical variables? Why, in a group of testees that shows a high correlation between two psychical variables, are there nearly always outstanding exceptions to the rule suggested by the correlation?

(i) The main reason for the relatively low correlations obtained in psychology is probably that the answering of a test always involves the activity of a *complex* of factors. The habits employed and the mental processes experienced are different from individual to individual, even as between persons who do exactly the same things and make exactly the same score in the tests. The complex of factors that is called into play may also differ in the same individual at different times. It is clear that this must tend to obscure any definite quantitative relations that may exist between the degrees to which the individual possesses the simpler factors of which the test-complex is composed. The psychologist appears to be somewhat in the position of a physicist who is not sure whether a given measurement is a length, an electric current, a measure of energy, or a bit of each !

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[1] Habit, of course, functions in every mental process, and we cannot therefore completely isolate intelligence and habit. The distinction here discussed becomes of importance in practical psychometry in such problems as the definition, followed by the measurement, of "practice effects" in intelligence tests.

[2] See G. J. Strickland: "The Influence of Practice upon the Correlation of Abilities." *Journal of Educational Psychology*, IX, No. 7; H. L. Hollingworth: "Correlations of Abilities as Affected by Practice." *Journal of Educational Pyschology*, IV; H. L. Hollingworth: "Individual Differences Before, During, and After Practice." *Psychological Review*, XXI.

These are all descriptive of work done in 1913-4. I do not know whether this topic has been investigated afresh in more recent years.

[3] The *regression* of physical correlations is, of course, more often curvilinear than linear. For curvilinear regressions r has a different meaning, but this does not affect our problem.

(ii) Although by continually improving our definitions of what it is that we try to measure by particular tests, and modifying our tests accordingly, we can do something to obviate the difficulty due to the complexity of our variables, we are still faced by the fact that objective performance only roughly corresponds to the accompanying mental processes. A purely objective psychology would be unlikely ever to obtain laws comparable with those of physics even if mental processes obey such laws ; in such a psychology we should expect correlations to remain fairly low.

(*b*) Correlations are frequently attributed, especially by American psychologists, to " common elements " of the two correlated abilities.[1] In the Two Factor view of mental process, as an energising of structural elements by a general mental " energy," the overlapping, to use a spatial analogy, of the structures corresponding to two abilities would produce correlation.[2] The theory of Two Factors would attribute correlation between more diverse abilities, whose structures could not be supposed to overlap appreciably, to the fact that both abilities drew upon the same source of energy. As most abilities have some points of resemblance (as judged by the form of the performance associated with the functioning of the abilities, and by introspective analysis), we have to regard most observed correlations as due in part to structural overlapping and in part to the general energetic factor. The interpretation of correlations on this theory, therefore, must be based upon a knowledge of the value of the general factor as compared with the test scores of the individual.[3]

(*c*) Lastly, a correlation between abilities X and Y may be due to a real connection between the dispositional bases of X and Y, or to the other factor (" energy," " intelligence," " drive," call it what you will) ; *or* it may be spurious, due simply to the fact that X and Y are both correlated with a third factor, Z. We can eliminate the effects of these

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[1] For a recent discussion, on this basis, of "factors which cause correlations among school functions," see : A. I. Gates and J. La Salle : "The Relative Predictive Values of Certain Intelligence and Educational Tests, etc." *Journal of Educational Psychology*, XIV, 9, 1923.

[2] Hence when Spearman seeks to prove the existence of his general factor by the correlations between abilities he selects abilities which are " sufficiently dissimilar." Only correlations between dissimilar abilities are expected to give a hierarchical arrangement. This was overlooked for example, by Dr. Wm. Brown, who failed to get a hierarchy of correlations between a number of essentially similar tests. (" The Correlation of Mental Abilities." *British Journal of Psychology*, III, 1909-10).

[3] Without identifying Spearman's " *g* " with general intelligence, we may suppose that the distinction between the " two factors " in any operation is closely allied to that between habit and intelligence referred to in section 3 (*c*) on page 197.

Z-factors by partial correlation provided we can measure them. But we cannot measure them until we know what they are, and that is often difficult to determine.

Summary and Suggestions.

(1) Generally the second, and probably always the third, decimal place of coefficients of correlation are significant only for the particular group tested. It is therefore permissible to use two-place correlations in an argument about a particular group, but it is generally wise to regard only the first place as of any general value.

(2) Less variable correlations probably will be found between the basic abilities underlying school subjects than between those subjects themselves.

(3) (*a*) " Probable Error " is an unfortunate term to use in articles intended for non-statisticians, and might be more frequently replaced by the limits $\pm e$, where $e=4\ P.E.$

(*b*) Probable Errors are often given for correlations without any inquiry as to whether the coefficients may be expected to be normally distributed.

(4) Published statements of correlational inquiries should be accompanied as far as possible by sufficient information as to the tests used and the conditions of testing for the interpretation of the data to be possible.

(5) It is possible to draw a distinction, which needs further analysis, between what may be called the " habit aspect " and the " intelligence aspect " of a performance, and these aspects should as far as possible be measured by separate tests.

Fichte and Recent Educational Reform in Germany.

By G. H. TURNBULL.

Since November, 1918, there has been taking place in Germany a process of reconstruction, a remarkable feature of which is that its pioneers have been drawing inspiration from the suggestions for reform made by the philosopher J. G. Fichte at the time of the Napoleonic Wars, over 100 years ago. For instance, at the opening of the National Assembly at Weimar in February, 1919, President Ebert is reported* to have said: " In this way we will set to work, our great aim before us : to maintain the right of the German nation, to lay the foundation in Germany for a strong democracy, and to bring it to achievement with the true social spirit and in the socialistic way. Thus shall we realise that which Fichte has given to the German nation as its task. We want to establish a State of justice and truthfulness, founded on the equality of all humanity." For the German reformer of to-day, as for Fichte, the task of the present is to preserve the existence and secure the future of Germany.

Naturally this process of reconstruction is affecting the educational system of the country ; and again it is in Fichte's writings that the reformers are seeking counsel, this time concerning the aims, methods and organisation of education. There is very good reason for such confidence in Fichte. The plight of Germany in his generation was as desperate as it is to-day. In 1807, as a result of the struggle with France and Napoleon, Germany had sunk into a state of abject humiliation. She had been severely defeated at Jena and Auerstadt in 1806; Napoleon had entered Berlin, and one after another the Prussian fortresses had fallen into his hands. The Treaty of Tilsit in 1807 completed the subjection of Prussia ; for it deprived her of much of her territory and forced her to maintain French garrisons in her fortresses, pay large sums of money to France and reduce her own army to 42,000 men. To Fichte this meant that thenceforward a foreign power would control the fate of his country, determining the aims and mode of government, restricting the activity of the people and threatening the downfall of the nation by assimilation ; it meant relapse into barbarism and savagery. Yet, like many another heroic soul, he refused to believe that all was over with Germany, and took upon himself the task of arousing the people to new life. He declared it was useless for them to blame one another for their position ; it was everyone's fault, for it was the whole spirit of the age that had brought such misery upon them. No one, he said, could help them out of that position but themselves ; they must find the remedy and apply it. It seemed to him that the collapse of the commonwealth was due to the mere material self-seeking of its members. When, therefore, he came to consider the question of means for restoring independence to the nation he rejected various alternatives, such as resistance, strong government and trust in the victor, and decided that the only effective remedy was complete regeneration, the creation by means of education of an entirely new spirit for the age.

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* *Times*, February 8th, 1919.

The efforts which Fichte made to rouse his people were a powerful factor in the creation of that national spirit which appeared for the first time in the War of Liberation of 1813-15. It is no wonder, therefore, that in the crisis of 1918 German patriots, judging the position and needs of their nation to be similar to its position and needs in 1807, remembered Fichte and turned their thoughts to his plans for the regeneration of Germany. Since 1918 educational reformers in Germany have been advocating the adoption of his principles more and more eagerly, and already there have been various attempts to carry them out in practice. Each of these attempts deserves careful and detailed consideration; for the present, however, we can look only at one of the most important recent educational movements in Germany and show how it is an attempt to realise the proposals of Fichte, its spiritual founder. This is the movement in favour of the Volkshochschule or People's University, as it is called, to which considerable attention has recently been given.* At Hamburg the new movement has culminated in a Fichte—Hochschule,† and although the movement has taken different forms in other parts of the country there is much that is common to the various types of Volkshochschule. No attempt will be made here to describe these People's Universities; this has already been done quite well, though by no means fully, in the Bulletin just mentioned. But it does seem worth while to enquire into those principles of Fichte's educational theory which are being applied in the Volkshochschule and which promise to make it an institution of far-reaching influence.

In the first place it must be noted that this new movement is spiritual; it differs essentially from two previous attempts at adult education, which were based one on the popular lecture system and the other on the University extension system, for its founders are profoundly dissatisfied with the results of both attempts and recognise the essential difference between learning and education. The aim of the Volkshochschule is not the dissemination of knowledge but the development of personal life. Man has in him infinite possibilities; these are the raw material for the educator, from which he must make the man who is truly an adult, *i.e.*, who is spiritually free, at inner harmony with himself and independent. Such independence involves the training of the bodily and mental powers inherent in the individual and particularly the stimulation and development in him of creative activity whereby he obtains a deep, discerning insight which can order, interpret and so make productive the knowledge he acquires.

It is interesting to compare with this Fichte's conception of the aim of education. Education is for him the development of spiritual life; it means giving a man opportunity to make himself completely master of his whole inner power so that he becomes a perfect adult, *i.e.*, attains independence and freedom and is able to take over the guidance of his own life. Now life is action; the aim of education must therefore be to stimulate and develop regular and progressive activity in the individual.

***E.g.*, in Bulletin XVII of the "World Association for Adult Education," August, 1923, and in the FORUM OF EDUCATION, Vol. I, i, pp. 56-60.

† I am indebted for some useful hints to a booklet by Engelhardt: "Fichtes Erziehungsgedanken und die deutsche Volkshochschule," Hamburg, 1919.

It is true that knowledge will accrue to him in the process ; but this is only an incidental and inevitable result, not one deliberately aimed at. Such education involves thorough exercise in every possible use of the physical powers and the development of the mind to be ever alert and self-possessed.

Yet the Volkshochschule does not aim at educating the individual simply and solely for himself : it seeks to transform the self-seeking of individuals and of classes into true love of the community and in this way to weld all into one whole. It recognises no distinction of classes and advocates for all an education based on those values which are genuinely national.

Here again the agreement with the views expressed by Fichte is striking. The purpose of education as he conceives it is not individual self-seeking but the service of the larger community of which the individual is a member and the ever-increasing ennoblement of the human race. Education should establish true patriotism in the hearts of all. By true patriotism Fichte means the hope which a man has of the eternal continuance of his people and which serves as the security for his belief in the eternal continuance of his own influence on this earth. He considers that this patriotism will make a man the courageous defender of his country and the peaceful and honest citizen. He claims that this education must be given to all the members of the community ; firstly because all are human beings and should be developed as such, secondly because we must be sure that no talent ever goes unused through not being discovered, and thirdly because all citizens must be educated to this sense of patriotism in order that the nation may be moulded into a really corporate body.

The aims of the Volkshochschule are self-activity and independence of thought. The means advocated for the attainment of these aims are collective study groups, which involve corporate work by small groups of people who, on a basis of mutual understanding, seek to develop creative activity by means of intensive study. In these groups there should be personal contact and close co-operation between teacher and pupil. The mode of procedure is a lecture followed by a discussion. In the lecture the teacher offers material which is subsequently discussed and dissected, never passively accepted. There is written work consisting of exercises, essays and papers, some of which at least involve the investigation of sources and train in the right use of books.

For Fichte self-activity is the essential condition of all development. He claims that the individual must search out the grounds of all his convictions, retaining nothing that he has accepted merely on authority, and must undertake and complete some investigation, great or small ; for when he has solved one problem he will be stimulated and strengthened thereby to solve a hundred. He ridicules the usual practice of the teacher who lectures but never comes into intimate contact with his pupils, saying that the latter might be better employed in reading the lecture in a book at home, where they would be more comfortable and could go over again what they did not understand, and so save time, money and confusion. He advocates the collective study group and regards teacher and pupils as forming a community which is a school for practising the art of using the understanding scientifically. In it the teacher is not to repeat what is already printed, for this means passive receptivity by the pupil, which destroys in him the impulse to self-activity and robs him of the possibility of using books which are the second means of learning. The individual studies, not in order to be able constantly to reproduce in an examination what he has learned, but in order to apply it in action to the problems of life. The teacher must help his pupils to the complete development of their manhood by bringing them to feel their real needs and making them acquainted with means for their satisfaction. He is, therefore, to supply the material and stimulate activity, while the pupil must work up the material for himself. But there is to be constant intercourse between teacher and pupil. The teacher must link what he says to what his pupil says; the pupils must debate the topics with one another so that all may profit thereby. The aim of this intercourse is not the acquisition of knowledge but training in the art of using knowledge, the development of a critical attitude of mind which can separate the true from the false, the useful from the useless, and subordinate the less important to the more important. As subjects for study in these classes Fichte mentions the lectures which the teacher gives and the books which he sets his pupils for regular study; for an important part of the work is training in the right use of books for the purpose of self-education. He suggests three modes of procedure: (1) examination, in which the question assumes that certain things have been learned and requires as answer some application of this knowledge; (2) discussion, in which the pupil questions and the teacher cross-questions, so that a Socratic dialogue takes place; (3) problems, to be answered in writing; these are to be set usually by the teacher but may also be thought out by the cleverer pupils and proposed by them as tasks for themselves or others; in either case the solution of these problems should necessitate the application and not merely the reproduction of what has been learned. The teacher is to judge each answer by the arrangement, the definiteness and the clearness of its exposition.

Finally, although the supporters of the Volkshochschule in the plans which they propose for the organisation of these collective study groups differ from Fichte on points of detail, yet they and he observe the same principles. They advocate in the country districts residential colleges which will be real communities of teachers and pupils; in towns they feel compelled, for the present at least, to be content with evening classes, but propose to have, in intimate connection with these, a residential college in the country. Similarly, Fichte would have everywhere little self-contained communities in establishments of their own with board and lodging in common under suitable and liberal supervision. Indeed, the supporters of the Volkshochschule seem to agree with Fichte concerning the organisation of these collective study groups on all points of importance save one: whereas he urges that these communities should consist of both men and women, they advocate the separation of the sexes. Even on this point, however, the difference of opinion is not complete, for it is only some of the supporters of the Volkshochschule who maintain this view against Fichte.

An Elementary School Syllabus in Mathematics.

By T. PERCY NUNN.

In 1912 the syllabuses then in use in the Demonstration Schools of the London Day Training College were published by the London County Council in a single volume. That volume has long been out of print, while in the course of twelve years the syllabuses have naturally undergone a good deal of revision; and since inquiries are not infrequently received from persons who desire to see them in the new form, it has been thought that it might be useful to reprint them. I have to thank the Editor for making it possible to test the soundness of that opinion by admitting this article to the pages of The Forum.

The syllabus claims to be a syllabus in *mathematics*, not in arithmetic. This departure from custom is meant to imply a rejection of the illiberal tradition which has limited the mathematical studies of the elementary scholar very largely to the manipulation of number. In other words, it is presupposed that between the mathematics of the elementary and of the secondary school there should be no difference whatever in the spirit and quality of the teaching, but only the differences that must distinguish the earlier from the later phases in the development of a single branch of intellectual activity.

School mathematics, taken thus as a single whole, deals with two main objects: number and space. A child comes into contact with numerical and spatial facts very early in his life, and the aim of mathematical teaching should be to develop, extend and organise his knowledge of them and of their relations in an orderly and systematic way. It follows that arithmetic and geometry should be developed side by side, and in their inter-relations, at every stage of the curriculum. The scope given to that principle is most clearly seen in the later sections of the syllabus, but it is intended to operate just as definitely in the earlier. In the earlier stages of the work its influence cannot be fully exhibited in a programme; it is present rather in the "practical" atmosphere in which all the lessons should be conducted.

The syllabus as a whole is divided into twelve stages, each stage indicating the ground to be covered in six months. This mode of division has been adopted to correspond with the practice, universal in the elementary schools of London, of organising the year's work into two terms, of which the first begins in April and the second in November.

Stages I-VI.

In the three years covered by these stages the pupil learns the notations used to represent numbers, including the vulgar and decimal notations for fractions, and acquires the rudiments of skill in the fundamental processes of arithmetic. In geometry the aims are: (i) to extend and make precise the child's daily observations and empirical knowledge, and to develop for scientific as well as for æsthetic purposes his natural interest in spatial patterns; (ii) to give skill in simple constructions by means of the straight-edge and compasses; and (iii) to make a beginning of formal geometry by simple exercises in the "geometry of position."

The exercises that fall under heads (i) and (ii) are intended to be related to, and to grow out of, handwork—in the form both of simple constructions in wood and other materials required in a parallel course of nature study, and also of model and toy-making in paper and cardboard. They may be supplemented usefully by exercises of the kind illustrated in Mrs. Radice's " Books of Shapes " (Hodder and Stoughton). With regard to (iii) it should be noted that the exercises are confined to those that involve only the measurement of distances and the fixing of points by the intersection of circles. The fixing of positions by the measurement of angles comes later.

The syllabus of these stages has been drawn up mainly by Miss Punnett, and the methods used are those explained in her " Groundwork of Arithmetic " (Longmans). It should be added that, owing to the differences in the attainments of children coming up from the Infants' Schools, it has been found most convenient not to prescribe any definite ground to be covered during the first half-year of Standard II (Stage I), but merely to indicate the level that should be reached at the end of it. The work of that half-year is, in fact, to revise and consolidate the work done in the Infants' School and, if necessary, to extend it so as to bring it up to the required level.

STAGES VII, VIII.

The work of these stages is transitional. It may be regarded as completing the study of mathematics appropriate to primary education, and also as an introduction both to the studies which the brighter scholars will pursue in a central or a secondary school and to the work which the residue will take during the last two years of their elementary school course.

In arithmetic the new work is concerned mainly with the uses and the manipulation of vulgar and decimal fractions. In geometry the new ideas introduced are : (i) the measurement of volume and (ii) the measurement of angles. The latter is based upon the determination of directions by the mariner's compass, and the nature of the illustrative exercises may be concisely expressed by the description " boy scout geometry." The protracters used are complete circles of cardboard or paper marked as compass-cards. If home-made (by hectographing), they are best graduated only to every five degrees.

STAGES IX-XII.

The work most suitable for the last two years of the elementary school must vary considerably with the sex of the pupils and the conditions of the school. The syllabus given is intended for a boys' school where conditions are favourable and a good many pupils proceed to industrial employments. It may be simplified by omission of topics marked with an asterisk, which may be replaced by topics taken from Appendix IV or Appendix V. The former sets out a course of "household arithmetic" (drawn up by Miss Punnett) for the use of girls ; the latter indicates a course on the " arithmetic of citizenship " suitable for either boys or girls. Both courses could be more profitably taken in a continuation school course.

SYLLABUS.

STAGE I (STANDARD II).

The work of this stage will consist chiefly in revising the work done previously. At the close of it the following should have been covered :—

1. Simple addition—numbers not greater than 999.
2. Easy subtraction, without carrying (" borrowing ").
3. Easy multiplication introduced (*a*) as repeated addition, (*b*) with the use of the multiplication sign ; the tables of the *twos, threes, tens, fives, fours.*

   Note.—Of the two forms of any multiplication table (*e.g.*, three), namely :—

1 three =3	three times 1=3
2 threes=6	three times 2=6
3 threes=9	three times 3=9
etc.	etc.

   the former may be called the table of "the threes," the latter the " three times " table. In all cases the former table is to be taught first as being more easily constructed. As soon as it is familiar the other form of table may be deduced from it.
4. Simple problems, given orally, involving the above operations.

STAGE II (STANDARD II).

A.—*Arithmetical Work.*

1. Revision of previous work and extension to more difficult cases, including examples involving money ; extension of the use of the signs + and – to larger numbers, *e.g.* :—

34+23=57
(34 and 20 make 54, and 3 make 57)
49 – 21=28
(49 ; take away 20, we have 29 ; take away 1 more, we have 28).

In addition of money :—

(*a*) the pence should be added by " making up the shillings " ; *e.g.*, 7d.+6d.+9d.+8d. 7d. and 6d. make 1s. 1d., and 9d. make 1s. 10d., and 8d. make 2s. 6d.

(*b*) the shillings should be dealt with by noting that the *tens* are ten shilling notes, *e.g.* :—

£	s.
	14
	+17
	+15
2	6

The units column of the shillings gives 16s., put down 6s. and " carry " one ten-shilling note. This with the other 3 *tens*, gives 4 ten-shilling notes, *i.e.*, £2.

2. Subtraction with "carrying" introduced as first a means of solving certain problems, then practised with

(*a*) the sticks and with imitation money, and

(*b*) with drawings symbolising them.

The method is as follows :—

$$\begin{array}{r} \text{tu} \\ 45 \\ -18 \\ \hline 27 \\ \hline \end{array}$$

We cannot take 8 from 5 ; we must therefore break up a ten-bundle. We might break up one of the 4 tens of the 45 ; but instead we will take a fresh bundle from the box,* remembering that it is an extra one, and must be taken away again before we finish our "sum." When we have taken 8 from this ten, we have 2 left, which with the 5 makes 7. Now, taking from the 4 tens the 1 ten of the 18 and the extra ten we took from the box, we have to take 2 from the 4, leaving 2 tens.†

3. The remaining multiplication tables should be learnt during this stage.

4. *Division as "Measuring."*

(*a*) Simple problems involving questions of the type "How many twos are there in eight ?"—"How many fives in twenty ?"—to be answered at first by taking sticks to represent the objects in question ; later, by means of multiplication tables.

The setting down of the "working" of such problems by means of the sign of division :—

$$8 \div 2 = 4$$

(To be read "8 put in twos gives 4 of them," or gives four twos.)

(*b*) Simple exercises (leading up to the work of the next section) of the form :—

How many threes are there in 18 ? (6)
How many threes are there in 5 (4, 7) times 18 ? 5 (4, 7) times 6 ?

---

*The pupil will almost certainly ask why he should take an extra ten-bundle from the box when he has already 4 in the 48. The results of the experiments of Dr. Ballard and Mr. Winch indicate the answer ; namely, that it has been found that people who do their subtraction "sums" in that way get them right more often than people who work them in the other way.

†An alternative way of dealing with the units is to begin by taking away the 5 of the 45. As we are required to take away 8 units, we have now to take away 3 more. These we take from a ten-bundle—a fresh one, as above—obtaining the remainder 7. The process is then completed as before.

This method appears in some ways preferable to the usual one given in the text ; but the fact that it is rarely used in Infants' Schools makes it inconvenient to introduce it in the classes just above those of the Infants' School.

(*c*) Continuation of division as "measuring."

(i) Cases in which divisor and dividend are both contained in the tables known, with and without remainders, set down either in the form

$$18 \div 3 = 6$$

or

$$\begin{array}{r} 3\overline{)19} \\ 6 \text{ rem : } 1 \end{array}$$

(ii) Examples with larger dividends but with no remainder from the tens, *e.g.*, 96 ÷ 3

$$\begin{array}{r} \text{tu} \\ 3\overline{)96} \\ 32 \end{array}$$

To be worked thus :—If the 9 tens were 9 units there would be 3 threes in them ; but they are ten times as big as 9 ones, so there are ten times as many threes in them (see (*b*) above)—that is, 30 threes. These with the 2 threes in 6 make in all 32 threes.

(iii) Examples in which there is a remainder from the tens ; *e.g.*, 74 ÷ 3

$$\begin{array}{r} \text{tu} \\ 3\overline{)74} \\ 24 \text{ rem. } 2 \end{array}$$

In this example we cannot at once argue as in (ii) above ; but we could do so if there were 6 tens, instead of 7. Suppose, therefore, that one of the tens is broken up and added to the 4 units. We may then argue that, since there are 2 threes in 6, there are 20 threes in 60. We then write down the number of threes in 14, namely, 4 with remainder 2.

(iv) Extension of the method of (ii) and (iii) to hundreds.

5. Simple problems involving the application of the work of section 4.

Note.—During this and the succeeding stages the children should be encouraged to rely less and less on handling the actual things (sticks, objects mentioned in problems, etc.) or on drawings representing or symbolising them, and more and more on "thinking of" them—that is, visualising or imagining them. At the same time, when a new "rule" or "method" is being introduced, the actual sticks or, later, drawings of them, will again be necessary.

During this stage the children should be gradually accustomed to work from problems written on the blackboard or placed before them in printed form.

B.—*Geometrical Work.*

The handwork and geography at this stage will include the decoration of pots and other objects with designs, the making of simple models of huts, simple frames, etc.

The mathematics lessons should therefore give exercises in :—

1. Dividing equally a given space and filling it with a simple geometrical design. (Only straight lines and dots will be suitable ; circles should be postponed till Stage V.)

2. Drawing simple plans for the construction of rectangular objects—*e.g.*, a cardboard or wooden box. The way in which such a plan should be drawn may be shown by letting each child open out, say, the inner part of a matchbox, and lay it flat upon his paper.

3. Dividing a strip of paper or cardboard into four parts in such a way that they could be made into a rectangular frame. In the case of the cardboard (which cannot be easily folded) the preliminary bisection may first be made by trial and then verified or corrected by measurement.

These exercises will involve the accurate drawing of right angles. The work at this stage will therefore also include :—

4. The recognition and testing of " square corners " (right angles)—
   - (*a*) by means of a piece of stiff paper folded in such a way that one edge is doubled on itself and produces a right angle,
   - (*b*) by means of an ordinary wooden set square.

5. The work will also include the continuation of measurements of objects in the schoolroom, with easy calculations arising from them—*e.g.*, two books, one five inches and the other four inches wide, lie side by side close to the edge of the desk : how far will they stretch across it, and how much space is left beyond them if the desk is 2 feet wide ?

Such exercises should be worked " mentally " with the aid of ruler or yard-measure, only the answers being recorded in writing.

At this stage the half-inch may be introduced in easy cases.

6. The exercises of the preceding sections should be continued and carried to a greater degree of difficulty.

For example, measuring operations in the schoolroom should be extended to more difficult cases and more difficult calculations should be based upon them—*e.g.*, the total length of the schoolroom wall and the width of the fireplace are measured, and from these the length of wainscotting needed for that wall is calculated. Exercises based on this example would be such as the following :—

- (*a*) A room is 30ft. long and 20ft. wide. How much wainscotting will be needed for it ?
- (*b*) A room is 27ft. long and 18ft. wide. It has in it two doors each 3ft. 6in. wide. How much wainscotting will be needed for it ?

In these exercises the children should be encouraged to draw sketch plans to help them in their calculations, and should be allowed in the more difficult cases to make calculations in writing.

The $\frac{1}{4}$in. should be introduced and the use of the $\frac{1}{2}$in. extended.

7. The fixing of the position of an object on the floor (buried treasure) or playground by measuring—
   - (i) from the object " straight " to the wall,
   - (ii) from that point on the wall to, say, the nearest corner of the room or to the door.

8. Small scale representations on paper. Practice in the method of drawing plans to scale which has been learnt in the geography lessons; namely, by substituting one length for another—*e.g.*, the drawing of a door to the scale of 1 inch to a foot.

STAGE III (STANDARD III).

A.—*Arithmetical Work.*

1. Revision and extension of previous work by means of problems and exercises.

2. Division as "sharing."
   - (*a*) Introduction (in connexion with simple problems) of the idea of "sharing," as finding simple fractions—*e.g.*, $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{}$, $\frac{1}{10}$, of given quantities.
   - (*b*) Demonstration by means of simple exercises that we can find the answer to a "sharing" question by finding the answer to the corresponding "measuring" question, *e.g.*, when I know how many sevens there are in 98, I know also the number which is $\frac{1}{7}$ of 98.

3. "Long" Multiplication.
   - (*a*) Multiplication by 10, 100, 1000, by moving each figure one, two, or three places to the left, a zero being put in each place left empty.
   - (*b*) Multiplication by 20, 30, etc., and later by 200, 300, etc., 2,000, 3,000, etc., by multiplying by 2, 3, etc., *and at the same time* moving each figure to the left.

4. Application of the results of Section 2 to questions of "sharing" money, as well as other problems.

5. Easy exercises in proportion:—
   - (*a*) Examples which can be worked mentally, the statement and answer only being written down:—

Cost of 4 ozs. of sweets=3½d.
Cost of 12 ozs. of sweets=10½d.

Cost of 15 ozs. of sweets=9d.
Cost of 5 ozs. of sweets=3d.

   - (*b*) Examples which need to be set down and "worked":—

Cost of 5 yds. of stuff=6s. 10½d.
Cost of 15 yds. of stuff=£1 0s. 7½d.

£	s.	d.
	6	10½
		3
1	0	7½

Cost of 20 yds. of stuff=£1 6s. 8d.
Cost of 5 yds. of stuff=6s. 8d.

	£	s.	d.
4)	1	6	8
		6	8

6. Simple problems involving measures of time, viz., hours, minutes, seconds, days, weeks, etc.

B.—*Geometrical Work.*

The work of this stage will consist chiefly of further exercises arising out of the handwork and geography. These will include more difficult exercises in drawing to scale, in connection with which the inch should be introduced. Special stress must be laid on accuracy in the use of the ruler and the set square—*e.g.*, in such an exercise as the drawing to scale of a window-frame containing a number of small panes.

STAGE IV (STANDARD III).

A.—*Arithmetical Work.*

1. Problems and exercises to revise and extend the previous work, including applications to money.

Note.—Multiplication of money should be taught throughout by the "practice" method. For example, to multiply 10s. 9d. by 5 we proceed thus:—5 ten-shilling notes make half as many pounds, namely, £2 10s.; 5 sixpences make half as many shillings, namely, 2s. 6d.; 5 threepenny pieces make half as much as 5 sixpences, namely, 1s. 3d. Altogether, then, we have:—

$$\begin{array}{rrr} \pounds & \text{s.} & \text{d.} \\ & 10 & 9\times5 \\ & & 5 \\ \hline 2 & 13 & 9 \\ \hline \end{array}$$

(In other cases it may be more convenient to consider 5 threepenny pieces as $\frac{1}{4}$ as many shillings.) As the examples grow too difficult to be done "in the head," the children may be led to begin with the pence instead of the larger denominations.

2. Weights and Measures.

The aim of this section is to give a knowledge of the chief English weights and measures (in the case of measurement of length this has already been partly done) and to develop at the same time as arising out of this work, the fundamental operations connected with fractions, first in relation to the fractions $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$, and later in relation to other fractions.

(*a*) *Measures of Length.* Continuation of exercises of previous stages involving yards, feet, inches, and $\frac{1}{2}$, $\frac{1}{4}$, and $\frac{1}{8}$ inch.

These three fractions as applied to the yard in "drapers' problems," and to the foot. The equivalents of these fractions of a foot and yard in inches, or feet and inches.

Further practice both in fractional ideas and in the handling of the above fractions should be furnished by introducing drawing to scale in the fractional form; *e.g.*, drawing to scale $\frac{1}{2}$, to scale $\frac{1}{3}$. Examples must be so chosen that no fractions of an inch other than $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$ are introduced.

(*b*) *Measures of Weight.* The common scales. Pounds and ounces (including $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$ of a pound, and their equivalents in ounces). Problems in dealing with them involving the "four rules" and including questions of cost. The spring balance.

Note.—As in the case of inches above, no fractions other than $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$ of a pound or ounce are to be introduced at this stage.

(*c*) *Measures of Capacity.* The pint, quart, gallon, and their relations to one another. The fractional relations between these measures in so far as they can be expressed by means of the fractions $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$. The four "rules" applied to these measures.

(*d*) Revision of *measures of time,* with applications of the fractions $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$.

Note on Weights and Measures.—In all cases children will first become familiar with the different measures by actually using them and seeing them used. No "tables" should be learned by rote until this familiarity has been gained as far as is possible. Then the "tables" should be written out as a means of recording and completing the knowledge already gained, and should be committed to memory.

B.—*Geometrical Work.*

1. Practice in the use of compasses in drawing wheels (needed in the cardboard work in the handwork lessons) and other circular objects. Exercises should also be given in drawing simple designs based on concentric and intersecting circles, the children being left as much freedom as possible in making their own designs.

2. The drawing of plans for making rectangular objects, which was begun in Stage II and continued in Stage III, should now be extended to plans of objects containing curved surfaces—*e.g.*, a pill box, a clock case.

3. Further exercises in extension of Stage II, B. 7.

(*a*) Fixing the position of a point in a place with reference to given lines and points.

(*b*) The fixing of the position of an object in space by means of three measurements—*e.g.*, to replace a hanging ball in exactly the same spot as before we must measure :—

(i) from the ball "straight" down to the floor.
(ii) from that spot on the floor "straight" to nearest point on the wall ;
(iii) from that point on the wall to, say, the nearest corner of the room.

STAGE V. (STANDARD IV).

A.—*Arithmetical Work.*

1. Problems and exercises to revise and extend the previous work.

2. Continuation of "Long" Multiplication.

Multiplication by such numbers as 17, 24, etc., by multiplying first by 10, 20, etc., by above rules, and then adding to that result 7, 4, . . . times the given number—*e.g.*,

$$\begin{array}{r} 43 \times 24 \\ 24 \\ \hline 860 \\ 172 \\ \hline 1032 \\ \hline \end{array}$$

N.B.—It is important that the children should multiply by the higher denominations first, as shown above.

3. " Long " Division.

The need of a new way of setting down division should be brought out by asking the children to try to divide (by " short " division) by a difficult number such as 19. It is then suggested that in these difficult cases it would be helpful to write down all the steps in the process, and that this new way should first of all be practised in easy cases. The work, then, will be graded as follows :—

*(*a*) Cases in which the divisor is small enough for the work to be done either by short or long division. In order to emphasize the idea that the two " methods " are only two different ways of writing down the same process, the first few examples may be set down in both ways, thus :—

```
5)842                    168
 168 rem. 2            5)842
                         5
                         34
                         30
                          42
                          40
                           2 rem.
```

N.B.—In long division the quotient should always be placed *above* the dividend.

(*b*) Cases in which the divisor is such that there is no " carrying " from the units to the tens when it is multiplied by the various digits of the quotient. Such divisors will be 21, 31, etc., and 22, 32, 42, provided that in the case of the latter group no digit greater than 4 occurs in the quotient ; and so on.

(*c*) Other divisors of two or more digits.

4. *Weights and Measures.*

Harder exercises on the weights and measures learnt in Stage IV. Also extension to the following :—

(*a*) *Measures of Length.* The mile and its relation to the yard, introduced first by indicating to the children some distance in the neighbourhood of the school known to be a mile and comparing it roughly with 400, 200, 100 yards.
The fractions $\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$ of a mile, and their value in yards.
Representation of miles by inches and fractions of an inch.
Reading distances upon a map.

(*b*) *Measures of Weight.* The stone and the pound. The " automatic weighing machine " may be used by the children to collect data.

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*The use of long division in the case of small divisors is, of course, to be discouraged after the few examples necessary to introduce the new method. Indeed the use of short division should be encouraged wherever possible and should eventually be used even with quite large divisors.

Problems involving the ton and hundredweight, and the relation between them and the pound.

(*E.g.*, Given the cost of coal per ton (or cwt.) and the number of pounds of coal an ordinary coal scuttle holds, what profit per ton does a landlady make who charges 1s. per scuttle of coal?)

(*c*) *Measures of Capacity.*

The peck and bushel and their relations to the smaller measures.

5. (*a*) Extension to fractions in general of operations which have become familiar in connexion with a limited number of fractions.

(i) Equivalence of fractions:—

$$\frac{1}{2}=\frac{2}{4}=\frac{3}{6}=\frac{50}{100}, \text{ etc.}$$

$$\frac{25}{50}=\frac{1}{2}; \quad \frac{40}{60}=\frac{2}{3}, \text{ etc.}$$

These identities will first be shown by means of objects and diagrams (lines, rectangles, circles, etc.) divided into the fractions in question. Later they will be found by rule; namely, in the first type we multiply numerator and denominator by the same number, in the second type we divide them by the same number. Abundant practice is to be given in writing down equivalents of fractions.

(ii) Addition and subtraction of fractions by application of (i) above.

(iii) Multiplication and division of fractions by whole numbers. Cancelling as it applies to these operations (first taught by means of diagrams).

(*b*) Problems of the following and analogous types, involving the "of" operation and the addition and subtraction of simple fractions.

(i) Five children, three from one family, two from another, are sent together to a house at the seaside. The total expenses are £4 10s. a week. How much should each family pay?

(ii) A crowd of 360 people leave a theatre door; two-thirds of them turn to the right. After a while three-quarters of these again turn to the right. How many does the last mentioned body contain?

B.—*Geometrical Work.*

The exercises will be of the same kind as in Stage V, but carried to a greater degree both of difficulty and of accuracy.

STAGE VI (STANDARD IV).

A.—*Mental Arithmetic.*

1. Oral exercises covering the work of the previous stages, including
   (1) Addition, subtraction, multiplication and division of "pure" numbers, money, weights and measures.
   (2) Reduction and simple problems involving it.
   (3) Simple problems of the "proportion" type (see Stage III, 5).

(4) Simple questions on equivalents of fractions; addition and subtraction of simple fractions; the "of" operation; multiplication and division of fractions by simple whole numbers; simple problems involving these.

2. Test papers. Simple questions on the above and also on the work done during the half-year, the answers to be written on the test paper without any written manipulation of figures.

B.—*General Arithmetic.*

1. Practice in more difficult examples of the four rules, including the applications to problems involving money, weights and measures. For multiplication and division Models I, II, III, IV (App. I) are to be used. (This section includes long multiplication of money and long division of money.)

2. The multiplication of a fraction by a fraction (as in C. 1 (*c*), page 216).

3. The extended decimal notation.

(*a*) The metric system of length-measures: the metre with its sub-divisions: decimetre, centimetre, millimetre. Comparison with English measures. Measurement of class-room objects with centimetre rule. The kilometre; relation to mile. Reduction of one metric denomination to another.

(*b*) Use of the decimal point in writing a length in terms of a metric unit and its sub-denominations. Simple problems involving addition and subtraction of lengths thus expressed and also multiplication and division by powers of ten and other whole numbers. (*N.B.*—In multiplication and division place-value must be emphasized; the figures are to be regarded as moving, the decimal point remaining fixed.)

4. The metric system of weights: the gram and the kilogram. Problems involving the decimal notation.

5. Use of the decimal notation to express tenths, hundredths, and thousandths of any unit.

C.—*Geometrical Work.*

1. Area.

(*a*) Distinction between surface-size and length-size (to be brought out by comparison of large and small copies of a similar drawing). Relative sizes of surfaces determined (i) by repeated superposition of smaller upon greater, (ii) by repeated superposition of a "unit" surface upon both when the former method is impossible. Exercises on comparison of areas or irregular fields, ponds, counties, etc., by squared paper. Exercises of the following and similar types: How many oblongs measuring (i) 12in. by 2in., (ii) 4in. by 3in. would cover one measuring 12in. by 6in.? How many oblongs measuring 3in. by 2in. can be cut from one measuring 15in. by 8in.?

(*b*) Standard units of surface-measure; the sq. inch, sq. foot, sq. yard. The *calculation* (or prediction) of the area of the square and oblong by *measurement* of the lengths of its sides; calculations to be limited to cases where at least one of the lengths is integral.
The formula: area of sq. (or obl.) = length × breadth.

(*c*) Calculation of area of square and oblong when both sides are fractional; *e.g.*, an oblong measuring $6\frac{1}{4}$in. by $4\frac{1}{2}$in. can be divided into 4in. strips each containing $6\frac{1}{4}$ sq. ins. together with a half-inch strip containing $\frac{1}{2}$ of $6\frac{1}{4}$ sq. ins. The calculation is therefore not one of pure multiplication in the original sense of the term, but may be *called* multiplication so as to bring it under the general rule or formula of (*b*). It is to be set down thus :—

$$\begin{aligned}\text{Area} &= 6\tfrac{1}{4}\times 4\tfrac{1}{2}\\ &= 6\tfrac{1}{4}\times 4+\tfrac{1}{2}\text{ of }6\tfrac{1}{4}\\ &= 25+3\tfrac{1}{8}\\ &= 28\tfrac{1}{8}\text{ sq. ins.}\end{aligned}$$

2. The straight line. The right angle. Parallel lines. Rectangles.

(*a*) Exercises in careful drawing of squares and oblongs of given dimensions. The angles are *right angles*, the sides *perpendicular* or *parallel*; a square and an oblong are both *rectangles*.

(*b*) If the drawings are to be correct the ruler edge must be straight, the set-square must be true.

(i) Test of a straight edge: however held, it should yield only one line joining two fixed points; a bent or a curved edge yields more than one.

(ii) Test of a set square; a true right angle can be made by the double folding of an irregular piece of thin paper. Definition of right angle. Acute and obtuse angles.

STAGE VII (STANDARD V).

A.—*Mental Arithmetic.*

Oral exercises and test papers as for Stage VI, but including exercises on the work of that stage.

B.—*General Arithmetic.*

1. Harder exercises and problems on the "four rules" applied to money, weights, and measures. Models III and IV (App. I) are to be followed, and the children are to be encouraged to shorten the processes by mental calculations as they become familiar with them. Note, in particular, that multiplication by (*e.g.*) 39 or 41 is best effected by multiplying by 40 and subtracting or adding the multiplicand to the product.

2. Vulgar fractions.

(*a*) Harder exercises and problems involving the "of" operation, addition, subtraction and multiplication of fractions, and simple combinations of these. The range of the denominators should be increased beyond that of Stage VI, but the same methods should be followed.

(*b*) Division by a fraction. This should be approached through problems of the following types :—

(*α*) Division of one length by another.

(i) Suppose we are asked to find how many tiles, each 4 inches across, would stretch across a hearth 10 feet wide. 4 inches = $\frac{1}{3}$ft., so that it is clear that 3 tiles will be needed to stretch across each foot of the hearth. And since, in finding how many times one quantity is contained in another, we have always used the sign ÷, we may state the result thus :—

Number of tiles $= 10\text{ft.} \div \frac{1}{3}\text{ft.}$
$= 10 \times 3$
$= 30$

(ii) If each tile had been 8 inches across instead of 4, it would have occupied the same length across the hearth as 2 of the smaller ones. We have, therefore, in this case :—

Number of tiles $= 10 \div \frac{2}{3}\text{ft.}$
$= 10 \times 3 \div 2$
$= 10 \times \frac{3}{2}$
$= 15$

(iii) If the hearth had been $10\frac{1}{2}$ft. across, and each tile $1\frac{2}{3}$ft., the same method of argument would apply. $10\frac{1}{2} \times 3$, or $31\frac{1}{2}$ tiles $\frac{1}{3}$ft. wide would be needed ; hence, since $1\frac{1}{3} = \frac{4}{3}$, the number of those larger tiles that would be needed is $31\frac{1}{2} \div 4$. We may state this thus :—

Number of tiles $= 10\frac{1}{2}\text{ft.} \div 1\frac{1}{3}\text{ft.}$
$= 10\frac{1}{2} \times 3 \div 4$
$= 10\frac{1}{2} \times \frac{3}{4}$
$= 7\frac{7}{8}$

At this point the " improper fraction " is introduced. Henceforward both fractional numbers may be expressed in this form, but only if the calculation can thus be made more easily. The mechanical use of a rule in all cases is to be avoided.

" Cancelling " should be introduced in connexion with these examples.

(*β*) Division of area by breadth to find length.
These examples should be taken as further illustrations of the method set forth above. The treatment should be as follows :—

(i) Given that the area of an oblong is $4\frac{1}{2}$ sq. in. and that its breadth is $\frac{1}{3}$in. : what is its length ? To obtain the required result we may suppose an inch-strip $4\frac{1}{2}$ inches long to be cut into three $\frac{1}{3}$ inch strips. Hence—

Length of oblong $= 4\frac{1}{2} \div \frac{1}{3}$
$= 4\frac{1}{2} \times 3$
$= 13\frac{1}{2}$ inches.

(ii) If the breadth were $\frac{2}{3}$in. the $\frac{1}{3}$ inch strip of (i) must be halved and one half placed below the other. Hence—

$$\begin{aligned}\text{Length of oblong} &= 4\tfrac{1}{2} \div \tfrac{2}{3}\\ &= 4\tfrac{1}{2} \times 3 \div 2\\ &= 4\tfrac{1}{2} \times \tfrac{3}{2}\\ &= 6\tfrac{3}{4}\text{ inches.}\end{aligned}$$

Similar reasoning may be applied to the case in which the breadth, as well as the area, is expressed as a "mixed number."

C.—*Geometrical Work.*

Angular measurement as a means of fixing and recording direction.

1. North, south, east, etc., north-east, etc., as names of directions. A right angle is a quarter-turn (*e.g.*, from north to east); a half-right-angle is one-eighth turn (*e.g.*, from west to north-west). The north direction is fixed by the position of the Pole Star or of the shortest shadow of an upright stick. The compass; use by sailors, scouts, etc.

2. For more accurate use the compass card must record smaller "turns" than those of (i). The degree as 1/360 of a complete turn. Exercises on number of degrees between given points of compass.

3. Use of compass cards graduated in degrees to solve by drawing simple problems of the following and similar types:—

(i) A road runs from south to north. At X another road branches off 42° east of north. The former road passes a church 2 miles north of X, the latter a house $1\frac{1}{2}$ miles from X. How far is the house from the church, and in what direction?

(ii) From a port X a steamer goes 6 miles due west and then goes 4 miles further north-west. How far is it from X, and in what direction?

4. Simple out-door exercises carried out by means of a pocket compass and a measuring tape (or by pacing).

STAGE VIII (STANDARD V).

A.—*Mental Arithmetic.*

Oral exercises or test papers on previous work.

B.—*General Arithmetic.*

Revision of the previous work and the following:—

1. Exercises and simple problems of the following and similar types: A earns 5s. a week and gives his mother 1s. 6d.; B earns 12s. 6d. and gives 4s. 6d. Which gives the larger fraction of his earnings?

Note three stages in these exercises: (i) when the denominator of one fraction is a simple multiple of the denominator of the other; (ii) when the denominators have no common factor; (iii) when they have a common factor. All cases should be illustrated graphically. In case (iii) Model VII (App. I) should be used.

2. Simple exercises and problems on the addition and subtraction of fractions involving reduction to a common denominator. Model VII should be followed and graphic illustrations should be given.

3. *Decimal Fractions.*
   - (*a*) Equivalences, such as $\frac{3}{4}=0{\cdot}75$, $\frac{3}{8}=0{\cdot}375$, and simple decimalisations, such as £3 14s.=£3·7, 5 tons 4 cwt.= 5·2 tons, to be taught by continual mental practice and used in exercises.
   - (*b*) Multiplication and division by decimals containing only one figure after the decimal point. Application to area-problems, etc. Models V and VI are to be followed.

C.—*Geometrical Work.*

1. Area.
   - (*a*) Conversion of a trapezium into a rectangle by dissection and recomposition ; rule for area.
   - (*b*) Conversion of a triangle into a rectangle ; rule for area.
   - (*c*) Construction of simple models (involving rectangles, trapezia and triangles) to given dimensions ; calculation of areas of surface.

2. Volume.
   - (*a*) Volume as a new kind of size. Comparison of volume of two jars by filling with water poured from small beaker.
   - (*b*) Measures of capacity or volume. A cubic inch is to be made from cardboard. Measurement of the number of cubic inches in a half-pint (using sand). The cubic centimetre. The litre. The graduated cylinder. The burette.
   - (*c*) Measurement of volume by displacement ; *e.g.*, Find the average volume of a tin tack by pouring a large number into a burette.
   - (*d*) The volume of a vessel of uniform cross-section can be calculated—
     - (i) given the quantity of water (or sand) that will fill the vessel to a height of one inch (centimetre) and the height ;
     - (ii) given the area of the base and the height.

     Calculation of volume of such vessels by both methods. (The area of the base is to be determined by tracing on squared paper and counting the squares.) The calculations are to be verified by use of graduated cylinder (using water or sand).
   - (*e*) Calculation of volume of a solid when the cross-section is a square or an oblong. Calculation of number of bricks of given dimensions that can be packed into a given rectangular shape (Cf. Stage VI, C. 1 (*a*)).

3. *Surveying Problems.*
   - (*a*) Further exercises of the type given in Stage VII, C.
   - (*b*) Construction of the course of a river, or track of a ship, of the plan of an estate, etc., given the distances and bearings of points from an origin. Playground exercises of this type.

(*To be concluded.*)

Psychological Tests of Educable Capacity.

2/- net. H.M. Stationery Office. 1924.

Report of the Consultative Committee of the Board of Education on Psychological Tests of Educable Capacity and their possible use in the public system of education.

The fact that the members of this Committee are men of experience in educational affairs and not psychological experts may possibly give an added significance to the important recommendations made. For it is a British characteristic not to give the expert too free a hand, often perhaps not free enough. Some years ago when it was decided to institute a psychological laboratory in a certain city in Great Britain it was considered expedient to send a committee to visit German psychological laboratories. One well-known German psychologist, whose laboratory was inspected, asked the writer some years later why there were no psychologists on that committee.

The Board of Education Committee, however, was fortunate enough to secure the expert knowledge and sound judgment of Dr. Ballard, Dr. Burt, Dr. Myers, and Prof. Spearman. The members of the committee even submitted themselves to experiment, although the results are not included. At any rate it is concluded " That up to the present the only kinds of psychological tests of educable capacity that have been sufficiently developed to be of much service in schools for the purpose of diagnosing and assessing such capacity are tests of ' intelligence,' standardised scholastic tests, and to a less extent vocational tests."

It is further recommended that steps should be taken by local education authorities to organise short courses in educational psychology with special reference to the theory of group intelligence tests, also that longer courses in experimental psychology with particular reference to the theory of intelligence tests and the technique of applying, marking and interpreting both individual and group "intelligence" tests, should be organised by the Universities acting in concert with local education authorities. Further, that it is advisable to encourage scientific research on the subject and to render available for use in schools and elsewhere the results of such research, and that the Board of Education, either acting independently or in association with other Government Departments interested in psychological tests, should set up an Advisory Committee to work in concert with University Departments of Psychology and other organisations engaged in the work of research. The first chapter is a historical sketch of the development of psychological tests and was prepared by Dr. Cyril Burt, who has also contributed notes on Standardisation and Norms and on Correlation.

There are also a number of valuable appendices such as accounts of experiments done in England, the use of tests in other countries, examples of various tests, a bibliography and finally the views of various psychologists on

(*a*) The factors involved in " general " ability which must be included in testing for educable capacity.

(*b*) The need for testing for " special " and " group " abilities in determining educable capacity.

As would be expected these views are not in agreement. The reviewer doubts if the general reader will be clear as to the meanings of " special " and " group " factors. Thus on p. 19 intellectual activity is said to depend seemingly upon (1) the general factor, (2) one or more special or " group " factors, (3) specific or individual factors. On p. 226 Dr. Brown refers to both " special " and " group " abilities. On p. 227 Dr. Burt refers to special capacities limited to particular subjects or particular groups of subjects. No wonder if the ordinary reader is bewildered as to what is a " special " ability and what is a " group " ability.

LL. WYNN JONES.

The Philosophic Basis of Moral Obligation.

By J. E. Turner, M.A. (Macmillan. 1924. Pp. 277. 12s. 6d. net.)

" THE crucial problem of ethics consists," writes Mr. Turner, " in the correlation of the principle of moral freedom with that of moral obligation." Modern systems have tended on the whole to sacrifice the latter to the former. It is necessary to bring out afresh the importance and the harmony of both.

We approach the problem from the standpoint of looking on the world as an evolving organised system. The universe is dynamic in every part, and every part becomes continually more complex within, and more far-reaching in its connections without. Every step in development is determined, but the earlier and simpler systems are determined predominantly from outside, whilst with growing complexity and width the part takes on more and more of the character of the whole, and determination falls more and more within the system itself. What was originally mechanical compulsion turns more and more into self-determination or freedom. With arrival at the level of consciousness or mind we find a unique advance along this line, and a hitherto unattained kind of *inner* necessity. And this " slow but fundamental transposition of the parts played by the environment and by the subject respectively " (p. 133) proceeds still further with the growth of moral life.

At this level a new change begins. The primitive consciousness of value means simply the satisfaction of separate desires. Then comes a conscious gradation of values as life becomes rationalised (which does not yet mean moralised). " Those complex conditions which underlie and determine want and its gratification " (pp. 146-7) are being reinterpreted by thought. But from this objective point of view value takes the general form of the power to confer upon incompleteness some measure of realization and completion. And this means the gradual supervention of a new type of criterion of value, so that " finally value is recognised and accorded quite apart from any actual satisfaction " (pp. 149-50). We have made the all-important change in our emphasis, from saying that whatever satisfies is valuable, to saying that whatever conduces to completeness has value, and will therefore satisfy (pp. 179-80).

Uniting this now to the previous idea of the systematically developing universe, we note that " no finite real whatever is in itself complete ; and so far as it possesses value it must contribute to some system more inclusive than itself " (p. 213). It is only the self-determining Whole that can constitute the ultimate standard of completeness, and what is really subserved in the end is the fuller being of the Whole (p. 220). Our categories of value are never more than subordinate and transitory aspects of this. " Once this dominant and inclusive concept has been apprehended, it becomes incumbent upon reason, from its very nature as reason, to erect it into the supreme and final determinant of all action. This forms the ultimate logical consummation of the rational self-determination of personality " (p. 236). This is what Kant tried but failed to set forth. " Once reason has begun its search for objective value or completeness as both the regulative idea and the final aim of conduct, it is bound to advance to the concept of the dynamic Whole or Absolute as at once the ground and the standard of value. . . . To fail to do this is to deny its own real nature, to defeat its essential purpose " . . (p. 241). Indeed, " that inherent logical compulsion which impels it unceasingly to transcend any given intellective content becomes one form of the universal moral imperative. For philosophical ethics must push its emphasis one step further " (p. 255). " Even rationality must find its ultimate basis in pure obligation, rather than absolute obligation in rationality." " The evolution of freedom implies a relevant change in the mode of universal determination, so that this becomes operative no longer as *mechanical*, but as *moral*, necessity. . . . What was originally —in the physical world—*a command*, impossible to disregard, now becomes a *demand*, which may be recognised or repudiated by the absolutely free choice of the individual " (p. 271).

This must have been a difficult book to write, and it is difficult to read. The argument, of which so brief a summary is here given, is worked out with the utmost care and continuity throughout ; no portion can be omitted without losing one's hold, and the mere size of the book makes apprehension difficult. It would be a great help if it could be shortened, and I believe this would be possible ; not by omitting steps of the argument, but by cutting out words and phrases and reiterations. Mr. Turner is a very careful writer, yet greater conciseness could, I think, be achieved without sacrificing any essential, and it would itself be an immense gain. I would cut out also a great many quotations from other writers, especially in the earlier part of the book. Mr. Turner is too diffident, and continually appeals to his contemporaries for authority and for restatement of truths which he has already put quite well in his own words.

In the room made by these omissions, I would ask the author to insert additional matter which would make our grasp on the argument much easier instead of harder, namely, a greater abundance of illustrations. Here and there we have an excellent example : *e.g.*, p. 114, on a system encroaching, as it grows more complex, on the self-determination of the Whole : " We may find a crude illustration of this in the steady rise of an able politician to power within the State. Here of course the ' system ' concerned is the personality at its highest level, as manifesting itself in influence and action, not the mere personage of the domestic hearth or the club." Or p. 226 : " In its origin the word ' whole ' connoted a certain degree at least of soundness or perfection, as in the old English expression ‘ They that be whole need not a physician.’ ” Here and there, again, Mr. Turner gives us an illuminating statement of some more concrete part of his conception, as on pages 245-6, “Nothing can be more sensitive than the trained and refined scientific and artistic ‘ conscience ’ ; the law of its world is the breath of its being. . . . Art and Thought alike are in direct contact with Reality ; ‘ fine art only achieves its highest task when it has become simply a mode of revealing to consciousness and bringing to utterance the Divine Nature ’ (Bosanquet). . . . Thus the freedom which they enjoy is attained always and only through advancing self-determination. The ‘ self,’ however, is never the personal ego, but rather the expanding world of art or of thought as the case may be ; which is transpersonal even while it employs the ego as its instrument.” But these passages that stick in one’s mind of themselves are very few, unnecessarily few, seeing that the author has so firm a grasp himself and could illustrate for us with a sure hand if he would save the time and space to do so. As it stands, the book is most austerely abstract, and I have found that not only is close attention needed to follow it, but a considerable effort of attention is also needed to keep one’s mind upon it.

It seems hard to say of a big book that it would provide an excellent basis for another book. But now that Mr. Turner has written out this for himself as a philosopher, and perhaps cleared and straightened his own thought thereby as any such sincere and worthy writing must surely do, will he not follow it up by writing another and more memorable book for his students? H. M. WODEHOUSE.

A Survey of the History of Education.

By Helen M. Wodehouse, M.A., D.Phil. (Arnold. Pp. viii+231. 6s.)

So numerous are the studies which contribute to the History of Education it is well to have a work such as that now before us making a survey without going into too great detail. In history as in other matters one is at times unable to see the wood for the trees; the writer of the small book often condenses to such a degree that the work becomes a catalogue of bald statement, so bald in fact as to fail to arouse interest, if indeed it does not destroy what already existed in the study. It is a difficult task to select from the ever extending field of educational history just those parts with which everyone should be acquainted; Professor Wodehouse has succeeded in doing this admirably considering the limits imposed upon her by the size of the book, though she has been obliged to leave out comparative history, and when the educational paths in different countries begin to branch out she has restricted her attention to the English line without consideration of collateral development. But after all the title is a small matter, and perhaps Professor Wodehouse will write other books on those aspects which she has been obliged to ignore in this " Survey "; if they are as interesting they will be welcome, and assured of a wide circle of readers.

History has to be worked out in the light of social conditions and because education is so closely wrapped up with life its story should always be told with a background of contemporary aspirations and achievements; the measuring stick of the twentieth century may often be inadequate for estimating worth of what was done in the thirteenth, a point one is apt to forget. Miss Wodehouse does not allow us to do so, but at many points in her narrative brings us face to face with such facts as are known to have influenced the course of education; thus when turning attention to Rome she writes, " The Roman mind was heavier than the Greek; less sensitive, less inventive, less curious. The traditional education was a training for the necessities of life without expansion beyond them; the boy learned to fight and to farm, to swim and ride, and to take his part in the worship of innumerable deities (the Romans were a very devout people), and to follow ' the custom of the ancestors.' The life of the ideal Roman was grave, restrained, austere. He must govern his household well, defend his State bravely, and take his share in guiding it if that belonged to his station in life." Here is the clue to Greek influence in Roman education, rhetoric was an essential ' to persuade men,' and the Greeks, the great talkers of the world, were the right people to start such schools." Their influence is shown in law, in economics, in literature, leading to an alliance between the two languages that has not been entirely severed even after two thousand years.

Again, in the chapter devoted to the Fifteenth Century the author sums up the factors in the Italian Renaissance. " One was the vivid local life which came, as in Greece, from the division into small independent states which yet had communication with the wider world.

The social system of the Middle Ages was broken up, for good or evil in the course of political struggles, and free play was opened for any man of talent who could be useful to his city, for a worthy or a less worthy end. Again as in Greece, economic changes and the growth of trade and skill had transformed society in some of the great towns. New families had arisen; the community had new leaders and rulers who had to justify their place. The new rich, the successful soldier and the great merchant, were ready to take their place in a new world and anxious to bring up their children to take a greater part in it; and the new municipality, proud of itself and emulating every neighbour, was filled with the same spirit."

These two extracts are typical of many that colour the picture in the discussion of the contemporary education.

Miss Wodehouse finds a little room for Jewish ideals; only a glance can be given, but it is sufficient to hint at the difference between the new ideals of Christendom and the circumscribed life under the Old Law. With the dawn of the new period and the passing of the Roman Empire as the barbarian advanced, the Church assumed control of education; the introduction of some animadversions of the Fathers on the dangers of learning serves a useful purpose here, and it might have been possible to have shown that the so-called obscurantism of the Middle Ages was due to operation of the very same principles. Students find it difficult to reconcile the attitude of the Church at that time towards the studies at Paris with her tolerance of many great classicists among her own ministers.

Passing to the period of English expansion in the 16th and 17th Centuries one naturally expects to find references to the "Courtesy" literature, to Vives, to Ascham, to Brinsley and Comenius, and one is not disappointed; but Richard Mulcaster is worthy of some attention not only because of his ideas on a hierarchy of educational institutions but also for his frank acknowledgment that the day of Latin was passing if indeed not already past, and that the mother tongue should be the vehicle of knowledge. Mulcaster was a schoolmaster whose pupils no doubt gave him just the same problems as those our teachers meet with to-day; he spoke with a far greater practical experience of class teaching than did Ascham or Vives or Milton or Locke; furthermore he was first in the field so far as this big break with the classical tradition was concerned in England. Since from the 16th Century "The Survey" is obviously concerned with education in this country, even to the exclusion of Scotland, the omission of reference to Sturm is less remarkable.

But the story goes on smoothly to 1840, bringing out the vital points; there are some well chosen extracts from evidence given before the Select Committee in 1816-1818. One of these gives food for thought; in reply to the question "Do you conceive that the two things united, reading and religious instruction, ever make the poor discontented in their stations, or less obedient to their superiors?", the Rev. Daniel Wilson replied "Unquestionably not. The direct tendency of the two, when united, is to produce those principles that lead to submission, contentment, humility, and in fact to all those dispositions and duties to which they are chiefly about to be called in the stations where Providence has placed them,'' etc., etc. (p. 155). Surely the educational philanthropist (and hence dictator) of those days could have had no sense of humour. Professor Wodehouse has shown her genius in setting the background when she selected that passage.

Events began to crowd after 1840, so further selection has to be made; the staffing problem for the Elementary School, Grammar Schools, girls' education, the three main Education Acts, and the growth of adult education are the principal topics developed. The book is closed with " Reflections after surveying Education,'' and some suggestions for further reading.

A book of this kind will be found very useful for students of education; a good lecturer will make much of it, for it is interesting, human, and concise, giving definite and essential facts which the teacher can elaborate.

A. P. BRADDOCK.

The Philosophy of Grammar.

By Otto Jespersen. (George Allen and Unwin, Ltd. 1924. Pp. 359. Price 12s. 6d. net.)

THIS book is described by the author as " an attempt at a connected presentation of my views of the general principles of grammar." It has therefore less psychological interest than his earlier volume " Language," and less direct educational application than " How to Teach a Foreign Language." None the less it is a work of the highest importance, and one which should be studied by everyone concerned with the teaching of grammar. As Prof. Jespersen remarks, if his views are accepted (even partially) " they must have practical consequences. First they must influence those grammars that are written for advanced students ; . . . and through such grammars the new views may also in course of time penetrate to elementary grammars and influence the whole teaching of grammar from the very earliest stage." His views are certainly revolutionary ; so much so that in a short review one cannot give an adequate outline of them. Still harder is it to guess how far they could be boiled down and simplified for the needs of school children. The conventional grammar is admittedly difficult and pedantic, illogical in its definitions and confused in terminology ; moreover it often fails to perform its function, which is to explain linguistic phenomena. Such considerations as these have led many authorities to discard grammar from the curriculum, at any rate of the primary school. They have argued, very rightly, that the grounds on which grammar was included, at this stage, were invalid ; for it does not teach correct expression, nor does it train logical thought (and even if it did, such " logic " would not be transferred). For the secondary school, however, a more plausible justification of grammar has been found, namely, that a foreign language cannot be successfully attacked without a knowledge of grammatical terminology, and that this can be most easily acquired in connexion with the mother tongue. With this argument, " the educational fallacy " as he calls it, Prof. Jespersen has no patience. Thus he censures Prof. Sonnenschein for maintaining that " the pupil who has mastered the uses of the English cases, as set forth in his book, will have little to learn when he comes to Latin." The fallacy is so widely held that it is worth while quoting Jespersen's refutation. " This means that part of the difficulty of Latin grammar is shifted on to the English lessons ; the subject in itself is not made easier even for those pupils who are going on with Latin afterwards, the only difference is that they have to learn part of it now at an earlier stage, and in connection with a language where it is perhaps more difficult to understand because the memory has no support in tangible forms on which to fasten the functions. And what of all those pupils who are never to take up Latin ? Is it really justifiable to burden every boy and girl of them with learning distinctions which will be of no earthly use to them in later life ? "

Latin has indeed more to answer for. Most of us, " steeped in Latin grammar from our earliest school-days," tend to impose its distinctions on English and other languages. It is the old search for a universal grammar, with its *a priori* suppositions that linguistic research has demolished. Even if a common terminology can be established (and there have been efforts in plenty), the results may be quite misleading; as Jespersen says of "the subjunctive mood," "those languages which have a separate form for it by no means apply it to the same purposes, so that even if this mood is known by the same name in English, German, Danish, French, and Latin, it is not strictly speaking one and the same thing; it would be perfectly impossible to give such a definition of the subjunctive in any of these languages as would assist us in deciding when to use it and when to use the indicative, still less such a definition as would at the same time cover its employment in all the languages mentioned." Against all this pedantry Prof. Jespersen pleads for "Living Grammar," which concerns itself only with the actual usages of each particular language. He further clarifies the problem by differentiating between two aspects. In the first, to which he applies the name Morphology, "we proceed from the form to the meaning"; in the second, Syntax, the order is reversed, and starting with a thought or meaning, we inquire how this is expressed. It is obvious that only the second of these divisions could in any way be regarded as universal; Jespersen indeed recognizes as universal syntactic categories the following: parts of speech (or word-classes), number, case, tense, mood, voice (or "turn," as he prefers to call it), person, and gender. But there is a further distinction of the utmost importance: he recognizes "that beside, or above, or behind the syntactic categories which depend on the structure of each language as it is actually found, there are some extra-lingual categories which are independent of the more or less accidental facts of existing languages; they are universal in so far as they are applicable to all languages, though rarely expressed in them in a clear and unmistakable way." These categories Jespersen terms "Notional." "It will be the grammarian's task in each case to investigate the relation between the notional and the syntactic categories." One example (which includes also a third phenomenon, "Form") may be quoted in full. "The English preterit is formed in various ways, and though it is one definite syntactic category, it has not always the same logical purport, as seen in the following scheme:

A. FORM.	B. FUNCTION.	C. NOTION.
—*ed* (*handed*) —*t* (*fixed*) —*d* (*showed*) —*t* with inner change (*left*) kernel unchanged (*put*) inner change (*drank*) different kernel (*was*)	preterit	past time. unreality in present time (if we *knew*; I wish we *knew*). future time (it is time you *went* to bed). shifted present time (how did you know I *was* a Dane?). all times (men *were* deceivers ever).

Syntactic categories thus, Janus-like, face both ways, towards form, and towards notion. They stand midway and form the connecting link between the world of sounds and the world of ideas. In speaking (or writing) we start from the right side (C) of this scheme, and move through syntax (B) to the formal expression (A): in hearing (or reading) the movement is in the opposite direction, from A through B to C.

The movement thus is the following :

C. B. A. B. C.
Speaker : Notion—>Function—>Form
Hearer : Form—>Function—>Notion.”

All this is admirably clear and illuminating—though hardly meat for babes. Let us turn therefore to material which would naturally come early in the teaching of grammar—the parts of speech. Of “ word-classes ” Jespersen recognizes five as “ grammatically distinct enough ” to be classed separately. His summary may be quoted :

“ (1) Substantives (including proper names).
(2) Adjectives.
In some respects (1) and (2) may be classed together as ‘ Nouns.’
(3) Pronouns (including numerals and pronominal adverbs).
(4) Verbs (with doubts as to the inclusion of ‘ Verbids ’).
(5) Particles (comprising what are generally called adverbs, prepositions, conjunctions—co-ordinating and subordinating—and interjections). This fifth class may be negatively characterized as made up of all those words that cannot find any place in any of the first four classes.”

There can be no doubt that some such scheme as this—especially with the author’s definitions—would be clearer and easier than the orthodox jumble. Certain details (*e.g.*, the inclusion of numerals under pronouns) are less convincing ; but as a whole it would save a lot of useless trouble. It may be added that Prof. Jespersen classifies words by function as well as form ; thus there can be no nonsense about nouns “ used as ” verbs or adjectives : in “ I shall motor there ” and “ a motor trip ” the word *motor* is (1) verb and (2) adjective—and nothing else. Incidentally the author gives a useful piece of teaching method : “ In teaching elementary grammar I should not begin with defining the several parts of speech. . . As a matter of fact the trained grammarian knows whether a given word is an adjective or verb not by referring to such definitions, but in practically the same way in which we all on seeing an animal know whether it is a cow or a cat. . . . I should take a piece of connected text, a short story for instance, and first give it with all the substantives printed in italics. After these have been pointed out and briefly discussed the pupil will probably have little difficulty in recognizing a certain number of substantives of similar meaning and form in another piece in which they are not marked as such, and may now turn his attention to adjectives, using the same text as before, this time with the adjectives italicized. By proceeding in this way through the various classes he will gradually acquire enough of the ‘ grammatical instinct ’ to be able to understand further lessons in accidence and syntax in his own and foreign languages.” The advice is obvious, but perhaps not unnecessary.

Another valuable distinction is that drawn between “ Junction ” (*e.g.*, “ a furiously barking dog ”) and “ Nexus ” (*e.g.*, “ the dog barks furiously ”). “ A junction is . . . a unit or single idea, expressed more or less accidentally by means of two elements. A nexus, on the contrary, always contains two ideas which must necessarily remain separate : the secondary term adds something new to what has already been named.” With this distinction is coupled the subordination of words into “ Ranks ” ; thus in the example just quoted, *dog* is primary, *barking* secondary, *furiously* tertiary. By extending this notion of rank to word-groups and clauses, Jespersen provides a far better means of dealing with the "subordinate clauses" of the old-fashioned grammar.

Only a few of the important innovations suggested by Professor Jespersen have been mentioned. But the book abounds in scholarly discussions of questions that have always been in dispute: one can do no more than name such topics as Word, Sentence, Proper Name, Gender, Case, Time and Tense, Mood, Negation—or the interesting Appendix in which the author justifies the construction found in "Arthur whom they say is kill'd to-night." The relationship between Language and Logic is of course fully dealt with, and the already exploded fallacy that grammar is (or should be) logic applied to language ought no more to show its face. Yet quite recently a writer in the *Times Educational Supplement* urged the tripartite structure of the sentence into Subject, Predicate, and Copula. But the jargon that suits the needs of formal logic is, fortunately, not language. To insist that there is a Copula in every sentence serves no purpose—except providing a jibe for the Freudians.

It would be impertinent to praise the lucidity and scholarship of a veteran like Prof. Jespersen. More than twenty languages are used for the illustration of various points; indeed all the languages of Europe contribute, except the Celtic. Were these also known to the author, he would find them illuminative in many cases; thus he would find quite natural what he calls the "curious" perfect of Anglo-Irish, *e.g.*, "he is after drinking."

This book will obviously become a classic for all professional students of language. Whether it can be made the basis for a reformed teaching of grammar in the schools may be discovered only by experiment. If the new terminology seems harsh and difficult, it should be remembered that it is consistent. One can well imagine that boys brought up on the lines of Jespersen would have a far more profound understanding of grammar than those whose minds have been poisoned by tradition.

F. A. CAVENAGH.

The C.O.P.E.C. Report on Education.

(Longmans, Green, and Co. 3s.)

THE Report of the Education Commission of C.O.P.E.C. is not addressed to teachers, but to the whole body of Christian people, and there are trenchant sentences descriptive of the state of mind out of which the Commission desires to rouse ordinary Church members. "They know little of what goes on in the Schools, and seem to care less." Large classes or small, qualified teachers or unqualified, "these things do not stir the popular newspapers to their depths nor the souls of those who write letters therein. Their concern is to keep down the rates and abolish Bolshevist Sunday Schools. Thus they fiddle while Rome burns."

It is then as an appeal to the well meaning but apathetic that the Report must be judged, and it must be confessed that its task is a hard one. The ordinary Englishman does not find education interesting, and although he may give lip service to the necessity for more and for better education, he seldom cares to read about the conditions under which it is carried on, or what its aims and methods should be. One doubts whether this Report will really help him much. The limitations of a Commission as author are considerable. To be arresting and picturesque, to flash a light in dark places, and thus to touch the conscience, and to stir the imagination is given to few writers, but can it ever be given to a Committee? Here and there an arresting phrase compels thought: "Huge 'efficient' barracks girt round with little asphalt yards." "A's child, mentally slow, is pushed (with difficulty) through a public school and University. B's child, intellectually brilliant, reaches the seventh standard at eleven years old, marks time then for three years and then begins his life work as a railway van-boy." But for the most part the wisdom of the book, and it is great, will be appreciated rather by the wise than by the foolish whom it would fain startle from their folly. As a whole the Report does not tempt to quotation. One does not imagine that its facts and figures will be passed round among those who should be won to read it. There is a great deal of generalization embodying the carefully phrased views of many contributors, but those whose interest in education is languid find generalizations somewhat unappetising and difficult of digestion.

The first chapter begins well by setting out the aim of education from a fresh standpoint, although the second chapter scarcely sustains the interest the first has created. There are some careful and well informed paragraphs on co-education and on religious instruction. Each stage of education receives separate consideration: the treatment of Primary Education is perhaps the most vigorous part of the Report, and the chapter on "Adult Education" contains many suggestive thoughts and facts. "Everything," begins the last chapter, "leads up to a final emphasis of the quality of the teacher," but there is little in the pages which follow to dispel the indifference or uneasy suspicion with which the teaching profession as a whole is regarded in many quarters. It has ever been found easier to rouse enthusiasm for good buildings, for playgrounds, special classes, etc., than for properly qualified teachers.

During recent years the appreciation of " what is and what might be " in the schools has undoubtedly grown. It has become less " silent and embarrassed " than it used to be. The Copec circles throughout the country have undoubtedly had their effect on public opinion, and now in its turn this Report will continue the work the circles began. The transformation of values for which it pleads must be slow. The Report closes on a healthy practical note pointing out that improvements in education must involve increased public expenditure, and calling on all Christian people to shoulder willingly their share of the financial burden.

WINIFRED MERCIER.

Book Reviews.

Essays in the Politics of Education : by F. Clarke. (Oxford University Press, 1923. x+158 pp. 5s.)

Of these nine essays four were written in 1923 expressly for the collection, the rest having been published in various educational journals during the previous seven years. Their real unity comes from the underlying conception of the purpose of education.

They are not all of equal importance. The general reader and even the student of education in this country will find little to interest them in Essay VI, which concerns itself with the vocational guidance of juveniles in South Africa, where differences of colour and culture-levels affect the problem, or in that part of Essay VII which deals with a " discipline ordinance " for South African teachers. Essay VIII, a discussion of the purposes of a University Department of Education, may not interest many readers, although the views expressed, without being at all novel, will be generally accepted by those who are concerned with the problem. Even Essay IV on " History in the Primary School," which seems rather out of place in a book of this kind, will not make a universal appeal. Those who are interested in the subject, however, will find ample food for thought in the analysis of the purposes of teaching history to children between the ages of eight and twelve, in the discussion of the vexed question of training in citizenship and in the programme suggested.

The heart of the book is contained in the remaining essays. They state and develop the author's conception of the aim of education, " the attainment of a right understanding of the eternal and the expression of that understanding in and through the ways of common life." Few of us will dispute that an adequate philosophy of education, or a clear conception of our ultimate objectives, is always necessary if we are to " give meaning to all forms of educational effort and reconcile that bewildering conflict of aims and ideals and necessities of life which in all educational work we have to face." Many of us will agree wholeheartedly that the need is particularly urgent at the present time ; and some of us, who believe it to be the only satisfactory basis of educational practice, will welcome the conception described by the author, a conception which the philosopher will call idealist (of the Hegelian kind) and the ordinary man religious.

In Essay I and the Conclusion Professor Clarke, examining the education of to-day in the light of this conception, finds that it fails to relate itself to some final objective order, and he attributes this failure to the influence of the individualistic attitude of the 19th century, for which science was largely responsible. He subjects to searching criticism Professor Nunn's " Education : its data and first principles," which he takes as representative of this attitude towards education. In my opinion he touches one of the weak spots in Professor Nunn's theory, when he suggests that the latter gravely underestimates the part played by society in the education of man ; although, in doing so, he does not altogether escape the other danger of ignoring the contribution of the individual to the educational process. Again, I believe he is right when he maintains against Professor Nunn that there is a universal aim of education ; for the weakness in Professor Nunn's discussion of the aim of education is that although he denies that there can be a universal aim he implies that the " good " life is the ultimate ideal, without, however, attempting to tell us its distinguishing marks.

Further criticism of the relation of science to education leads Professor Clarke to the view that education " belongs primarily not to science but to philosophy, and more particularly to that side of human philosophy which the Greeks called politics," and that it is the Greeks and the great poets who teach us most about politics and education, for by telling us of ultimate values and of the full concrete quality of the things of life and experience they enable us to make the synthesis we need. Illustrating from Mr. Tansley's " The New Psychology " he rejects, for several reasons, the claims of psychology to be considered the basic science for education, and concludes that, although both psychology and biology must be used for elucidatory purposes, the controlling science for education is neither of these but sociology, because the educator must start out, not from instinct, but from the conception of the Great Society or Civilisation as a whole. Consequently he finds the true line of advance in modern educational doctrine and practice in Dewey and Kerschensteiner rather than in Montessori and the Dalton Plan.

There are some points in these arguments which cannot be conceded, *e.g.*, the assertion that there is no substantial agreement as to what psychology is ; and there are many more that will arouse opposition and keen controversy. Some of us, like the writer, who share with Professor Clarke the fear that " the ship of education may get itself stuck in academic flats and shallows, and be lost in the quicksands of statistics or on the sunken reefs of experimental psychology," while admitting with him the need and the legitimacy of such " in-shore explorations " will be glad that he has warned us all not to " forget that there *is* after all an open sea, and that it is from the great sea that the vast waves and the endless tides come which give to the in-shore features their nature and configuration."

The second essay, entitled " Education and Society," is devoted to a consideration of the educative influence of social institutions ; in conjunction with this should be read those parts of Essay VII which deal with the teacher and the school. We are grateful to Professor Clarke for emphasizing in these days the importance of the family in education, and for stating in plain terms the proper functions of both school and teacher. He examines three theories of the relationship of the State to education and accepts that which regards the State as a force keeping all other institutions in harmony by adjusting their relations, a view which is rapidly spreading in these days and which has much to commend it.

In Essay V " What is Secondary Education ? " he declares for some form of secondary education for all between the ages of twelve and seventeen or eighteen. He does not, however, agree that this should be the *conventional* secondary education and sketches a programme which involves a much larger number of types of secondary schools, together with the relegation of matriculation to its proper place as a University entrance examination, an " educationalising " of industry to make it a wholesome educative influence, the development on a large scale of the continuation school as an " educational club for juveniles," and the creation of the administrative machinery necessary to co-ordinate all these activities upon the single end of adolescent training. Although some of us will not readily accept all these suggestions, most of us will sympathise with Professor Clarke and all of us will be grateful to him for enriching our conception of universal secondary education and for reminding us that the industrial order must be made educative in the fullest and best sense.

As if anticipating objections to his proposal for the development of part-time instruction Professor Clarke adds to this essay a very illuminating examination of Mr. Tawney's " Secondary Education for All." He differs from Mr. Tawney on two important points. In the first place he doubts the wisdom of free secondary education and urges the strengthening of the family so that it will be able to pay for secondary education as a family provision—an argument in which there is much truth. The suggestion should not prove unwelcome to the Labour Party; for those who know Mr. Ramsay MacDonald's book " The Socialist Movement "will remember that he regards as fatal any attempt to substitute the schoolmaster for the mother, and that he considers such forms of State action as the feeding of needy children temporary measures, justifiable only on the ground of dire necessity until the family income has been made equal to family requirements.

The second and much more important point of difference is that Professor Clarke wants both school and industry made educative, because he holds that " school" is not necessarily the best place for the adolescent ; whereas Mr. Tawney, he argues, advocates the conventional secondary education for all. There is no doubt that Mr. Tawney's conception of universal secondary education is much more limited and governed by tradition than Professor Clarke's ; in spite of his statement that " within the secondary system there must be more than one type of school," Mr. Tawney elsewhere accepts the current official definition of the nature and curriculum of the secondary school. Again Professor Clarke's larger conception should not prove distasteful to Mr. Tawney and the Labour Party. In principle they really agree with him. In his later pamphlet " Education : the Socialist Policy," Mr. Tawney counts industry as an educative influence and urges us to consider, in organising it, the needs of children under 18, while Mr. MacDonald in " The Socialist Movement " states definitely that " the community must take over economic power, bridle it and harness it and make it do social work."

Finally Essay III is an attempt to resolve the antithesis between liberal and vocational education. Although Professor Clarke comes to the conclusion that no education can be really liberal without its vocational core, he refuses to accept the view, maintained by Dewey and Kerschensteiner, that vocational education, rightly conceived and rightly carried out, is identical with liberal education, on the ground that even at its best a vocational education must be supplemented and spiritualized by a liberal education in the form of language and literature, history, geography, science, religion, music and art. Frankly this result is disappointing. Professor Clarke has not transcended the antithesis ; he has merely added liberal to vocation education.

The essays are then of unequal merit ; but we are grateful to Professor Clarke for reading that is pleasant and interesting and for argument that is always clear and often convincing. Although he writes in non-technical language for the ordinary man " who, as a rule, neither reads nor thinks much about education," his suggestions for the solution of some of the most important educational problems of the day will provoke the critical consideration of all serious students. In fact, the book is one which can equally well be placed in the hands of the young teacher at the beginning of his career or adopted as the basis of discussion with a class of advanced students.

G. H. Turnbull.

Supernormal Faculties in Man : by Eugene Osty. (Methuen and Co. 15s. net.) This book will be read with interest by those who have observed phenomena, often called " psychic," which cannot be explained by what we already know to be properties of mind.

Dr. Osty gives a vast number of examples of many different kinds of occurrences which he believes are due to supernormal faculties possessed by many people and often discovered only accidentally. These powers enable their possessors to " see " past, present, and future events in the lives of other people.

As the translator, Stanley De Brath, points out, it is possible to imagine in cases of telepathy, vision at a distance, discovery of hidden water-springs and certain other phenomena, a sensory system registering vibrations unperceived by the normal senses. When, however, an event is revealed which happened yesterday, or a hundred years ago, and still more when the event has not yet taken place, it is no longer possible to suppose that the " faculty " is registering vibrations of any kind.

There is much to appeal to the general reader, as well as to those specially interested in the subject, and the technical terms used are very clearly defined.

Many extremely interesting happenings are told at length, and with so great a number of cases it is perhaps not surprising that some are unconvincing. Unfortunately several of these occur early in the book, but judgment should be reserved till the whole book has been read. The majority of cases reported, however, suggest that an enormous amount of trouble has been taken by the writer to find proof or disproof of the occurrences.

Dr. Osty makes many interesting suggestions and deals capably with existent theories, including that of " quackery." The book is a definite attempt to put the study of " supernormal " phenomena on a scientific basis, in the hope that men of science will not remain indifferent or merely passively interested spectators to " the psychological drama " portrayed in its pages.

It is astonishing that so little active scientific interest is taken in matters an investigation of which might, whatever it disclosed, lead to very fruitful results, whether in new discoveries concerning mental qualities or in the exposure of deceit and quackery.

It may be that Dr. Osty's hope will be fulfilled and that the experiments will be repeated by others competent to make them. Or it may be that the time has not yet come, for as he says, " Scientific research is closed to sentiment and to the traditions that are so tenacious of life because born of our desires and illusions." He is, however, optimistic, and believes that " human supernormality has gone through the evolutionary phases of all human knowledge. Just as astrology, alchemy, the notions of hermetic forces, and miraculous cures, have become astronomy, chemistry, physics, and medical science, so human supernormality has become a chapter in human biology. The occult gestation is complete and a new science is born whose development will bring many surprises."

F.M.R.

The Study of Nature with Children: by M. G. Carter. (Methuen and Co. Pp. vi.+183).

The aim of this book is the modest one of offering " help to those who are trying to work out courses of nature study with children up to about fourteen years old." We confess to have entertained the hope that a book bearing the above title would afford guidance as to how to teach the subject, not merely what to teach. Books dealing chiefly with subject-matter are fairly numerous, and most of them are helpful. The present one is no exception. Having accepted the limitations, we readily concede that it is a serviceable book for teachers of young children. We still await, however, one which will enable us to realise the general principles which should determine not only the choice of subject matter, but the methods of treatment; one which will do more than offer practical hints and suggestions regarding this or that topic, useful as these undoubtedly are.

Miss Carter regards nature study as the " affectionate, curious, and admiring observation of natural objects and their behaviour." Nature study bereft of this emotional appeal is unattractive, sterile and ineffective, and usually creates a lively dislike of the subject on the part of the children. We are inclined to disagree when she adds to the above " rather than in experiment, classifying and reasoning." There need be no antithesis here. Simple experiments are not only appropriate, but are often necessary to the understanding of a topic—moreover they are sometimes suggested by the children, and are a most valuable discipline. It is this view no doubt that is responsible for very inadequate treatment of suitable experimental work. With regard to classification, some attempt to classify is almost inevitable. Even when a child recognises flowers, fruits, catkins, butterflies, etc., he is making the first steps in classification. As for reasoning, this power is developed at an early age, and should not be divorced from the nature studies. There should be no hard and fast line between the school nature work and science. The one may gradually fade into the other if the studies are continued, and notwithstanding their simplicity, such studies should be sound enough to form a worthy basis for any later developments.

The introductory section of the book, which includes suggestions as to types of work for children of different ages, should be found useful. Section II deals with " apparatus and material," and affords suggestions as to the topics for class work, with occasional hints as to procedure. The subjects embrace not only animals and flowering plants, but also fungi, soil, weather, and astronomy. The " central feature " of the book is a calendar giving a detailed list of material likely to be available for study in each month, also appropriate notes. This section should be found useful for reference, especially by those who have no great familiarity with the countryside.

E.M.P.

Freedom of the Mind in History: by Henry Osborn Taylor. (Macmillan and Co. 7s. 6d.)

Mr. Taylor states his theme at once: " I conceive progress, by which I mean the increase of human well-being, to be the achievement of human faculty and the divine power." Evidence is adduced from the history of institutions, religion, philosophy, and science, not to prove, but by its cumulative weight to suggest, the human side of the proposition. But the author feels that something more remains. " To many of us the human agency is unsatisfactory unless supplemented by some co-operative, or rather primordial, divine efficiency." The suggestive force of the book is strong, as might be expected of the work of a historian competent to review with assurance long epochs and millenia.

But to begin with an admission that all history can do is to illustrate the enquiry is not to absolve oneself of responsibility for making clear one's attitude to the philosophic side of the problem. This the author fails to do, with the result that we cannot be sure that presuppositions do not vitiate his interpretation of historical fact. Nor does he analyse out the constituents of freedom and progress, and hence he fails to come to grips with the real nature of the necessity behind human life. The possession of purpose, for example, may not imply freedom: purpose may only be teleological—but still conditioned—response to a particular group of stimuli. Purpose must be illuminated with something in the nature of an ideal, a concept of value, to be truly characteristic of freedom.

The author's real contribution lies in his developmental study of the main lines of man's intellectual effort, particularly, if we may select, those on Christianity and natural science.

H.B.L.

Quickness and Intelligence, an enquiry concerning the existence of a general speed factor : E. Bernstein, B.A., B.Sc., Ph.D. *British Journal of Psychology* Monograph Supplements. (Cambridge University Press. Pp. vi+55. 7s. net.)

Dr. Bernstein presents his thesis with much care and many precautions. His research took its rise in the work of a number of psychologists who have for twenty or more years been investigating the factors involved in educational ability—general, specific, and those of the latter type which, having apparently a wider scope, are called group factors, have been the subjects of research for some time ; one, however, a speed factor, has hitherto received scanty attention. What little work had been done on it pointed to the absence of such a factor ; it has commonly been held that quickness in one mental operation was usually accompanied by quickness in another, though the saying " slow but sure " indicated a contrary opinion.

The manner of carrying out tests by which a time limit is imposed is open to objection, and Dr. Bernstein has tried to investigate the relation of speed to intelligence, the part played by speed in the course of tests, and the probable effect of coaching for tests. Slowness has been attributed in a great measure to " perseveration," and Dr. Bernstein, after reviewing the published results of many researchers, has repeated selected tests and supplemented them with some of his own. The essence of these appears to consist in establishing a strong " set " for a particular operation which might be expected to betray itself in a subsequent test. The correlations between the scores in the two operations are nearly all positive ; they are not high and their probable errors are relatively large though the reliability is of a high order. This would appear to indicate that the " set " materially affects the final test, but it may be suggested that more attention is due to the relatively high probable error in this connection. The estimation of the perseveration tendency is extremely difficult, but Dr. Bernstein finds that, with due care in selecting the basis of valuation, there is correlation sufficiently high to warrant the belief that perseveration is a factor.

In the main enquiry great skill has been shown in the precautions taken by the investigator for eliminating the effects of factors such as fatigue, perseveration and so on, likely to vitiate the reliability of the conclusions. The tests selected were : i, Sentence completion ; ii, directions ; iii, concomitants ; iv, analogies ; v, moral classification. Arrangements were made for compelling haste or allowing leisure in the performance of the tests ; they were in sets which were " ordered " (Y) or " mixed " (X). The thoroughness of the investigation may be estimated from the following account : " Each boy worked through 200 separate test sheets. The numbers of the five kinds of tests which appeared on these sheets were as follows : 440 sentence completions, 450 directions, 590 concomitants, 360 analogies and 410 moral classifications—a total of 2,250 tests. Each kind of test appeared four times in any one series (X or Y), so that in the whole ten sessions in which the application took place, each kind of test was submitted to forty repetitions So large a number of repetitions must exercise an important effect on the reliability. Variations in performance due to chance errors, fatigue, changes in attitude, etc., will tend to be eliminated in the course of these repetitions. The thorough repetition, together with the abundance of material employed in the tests, would therefore be expected to produce high reliability." There can be little question that the method was adequate. Intelligence was estimated on the opinion of the general class teacher and the instructor in manual work ; considering the diverse qualities upon which the adjudications would in this way be established the plan appears to be good, but difficulties may occur if there be a marked negative correlation between the two estimates ; the solution of this problem is worth attention.

Dr. Bernstein's conclusions are :—

(i) The results do not encourage belief in a speed factor, and slowness must be referred to differences in interests, conative differences, physical defect, nervousness, deliberation, perseveration, though the last-named is not a genuine cause of slowness.

(ii) Long and short tests did not show any respective merits over one another.

(iii) Table XI appears to show conclusively that practice did not lead to any marked improvement in performance ; in one series only (mixed speed tests) is there any sign of progressive improvement, and even this begins after an initial smart drop. Dr. Bernstein claims " that the objection as to the possibility of coaching is not well grounded."

"Quickness and Intelligence" is an interesting monograph. Many will fail to be entirely convinced by it, but it is a valuable piece of pioneer work on an important problem. It would be improved by a more lucid interpretation of the results, and perhaps for the benefit of the non-mathematical reader Dr. Bernstein will afford this in other accounts of his work when he is not restricted by the technical requirements of a doctorate thesis. A.P.B.

Parent, Teacher and School : by M. E. Moore. (The Macmillan Company. 1923. Pp. 395. 9s. net.)

The author is a superintendent of schools at Beaumont, Texas, and has written this book because he believes that public school education has become so closely connected with the home that it is highly necessary to create a body of literature of common interest to both parent and teacher. He points out that "within the last decade there has grown up in America an organisation composed of half-a-million mothers and a few fathers. Its numbers are rapidly increasing. It is known in its State and national meetings as the National Congress of Mothers and Parent-Teachers' Association, but in its local meetings as the Parent-Teacher Association. The work of this organisation is inseparably connected with the work of the public schools." How urgent the necessity is for an organisation of this kind is shown by the evidence furnished in this book of the low state of education that still exists in thousands of rural areas in the United States of America. The author has made an effort to exhibit the main aspects of public education, so that they may be readily recognised by the Parent-Teacher Association in its effort to help the schools.

He has undoubtedly succeeded in his purpose. He deals in a clear and interesting way with such questions as What Parents should know concerning School Finances, How the Parent may know his School, School Attendance, The Child's Health, The Child and Play, The Child and Thrift, Measuring and Marking the Child's Work, Training, Employing, Paying, Retaining and Recognising the Teacher. These matters are illustrated in thirty-one clear charts and twenty-two useful tables, and there is, as far as I can see, no discrepancy between these and the text in which they are discussed, except in one case on page 331. Summaries are supplied of each considerable section, and there is a set of questions at the end of each chapter; there are too many of the former, and the latter are too simple.

As most of the historical facts dealt with and the statistics discussed in the book refer to the United States, it is hardly suitable for adoption as a text-book by students of training colleges in this country : nevertheless, a copy should be placed within their reach, as it is a successful attempt at selecting and treating those matters which teachers should aid and urge British parents to consider.

Different types are used for different purposes in the book ; that in which the greater part is printed is one of the best I have for many years seen in a text-book.

W.P.

The Guildhouse : a Co-operative Centre for Adult Education. With a Foreword by Lord Eustace Percy. (The British Institute of Adult Education. 1924. Pp. 111. Price 1s. 6d.)

This small but valuable book embodies the report of a Committee originally appointed by the British Institute of Adult Education to inquire into the educational functions of settlements. In the course of the inquiry it was found desirable to widen the terms of reference, and the result consists of (1) a survey of the needs of adult education, with recent developments ; and (2) a detailed account of the "Guildhouse." This latter name has been chosen, *faute de mieux*, to stand for the proposed house in which may be centred all activities in every district which are in any way concerned with adult education. The ideal is eloquently set forth ; but the practical side is also dealt with, in chapters on organization and finance. It may be mentioned that "The Guildhouse" formed the subject of discussion in a recent conference of the British Institute ; further details, especially concerning finance, were then promised by the Chairman of the Committee which framed this report, Mr. H. J. Laski. It is plain that, if the adult education movement is to become really effective, a radical change from isolated classes is essential : the community spirit must be roused and enlisted. For the Guildhouse is far more than a housing-place : it is an entity, created and kept alive by its members. The British Institute has done well to publish this noble vision.

Crime and Insanity : by W. C. Sullivan, M.D. (London, 1924 : Edward Arnold and Co. Pp. viii+260. 12s. 6d. net.)

It is the duty of the expert in any subject to make his knowledge public. Quite apart from the assistance which such publication is to other workers, it is only thus that society can become aware of the service which the expert is able to render. Dr. Sullivan has been mindful of this obligation. From the storehouse of the knowledge which he has acquired, as superintendent of the State Criminal Lunatic Asylum at Broadmoor, he presents us with a book of extreme value on a subject of perennial interest, and which is being more discussed now than at any former period.

Dr. Sullivan starts with a brief summary of the various theories which have been held as to the nature of the criminal, indicating the essential weakness of the once fashionable theory of Lombroso. He adopts the view that we have in crime, as in all other bio-social problems, an interaction of two sets of factors, namely those inherent in the individual and those due to the influence of the environment. He takes the sound position that progress in this, as in any other branch of science, can only be made by the careful and intensive study of individual cases. And he holds that punishment is, essentially, the outcome of the instinctive reaction of society to acts which tend to disturb its equilibrium.

Of the various ways in which his subject could be treated Dr. Sullivan adopts that of describing the different kinds of psycho-pathological crime which may occur in connection with the main divisions of insanity, pointing out that each variety of insanity is, speaking broadly, connected with particular kinds of crime. For example, the types of murder committed in the depressed phase of manic-depressive insanity differ entirely from those committed by paranoiacs. And he illustrates his thesis by a series of well selected and admirably presented case histories.

It is probable that most readers will turn first to the two concluding chapters, in which the difficult problem of " criminal responsibility " is discussed. Dr. Sullivan points out this is essentially a legal problem, but that the standards laid down by the law are proper subjects for psychiatric criticism, and that we may ask whether the present criteria really secure the end which the law has in view. After a brief review of the history of the attempted solution of this problem, he passes to the famous McNaughten dicta. The great defect in this criterion of legal insanity is that when strictly applied, it limits irresponsibility to cases of disorder of the cognitive and perceptive activities of the mind. Dr. Sullivan criticises the modification of the McNaughten rules which was proposed by the recent Atkin Committee, holding that this modification is comparable to the "repair of a worn-out but respectable formula by putting on a patch from a totally different pattern of thought." He is in favour of the adoption in this country of the simple formula of the French Penal Code, which enacts that " There is neither crime nor misdemeanour when the accused person was in a state of madness at the time of the act." He also holds that the present method of presenting the medical evidence in such cases should be replaced by a system in which an impartial board of experts should examine the accused person, and place a report on his mental condition before the court. It is, no doubt, true that the pitting of experts against each other has grave drawbacks, and is, on occasion, productive of unedifying results. But the employment of a board of examiners is open to serious objections. Under any arrangement, it would be impossible for the court to prevent the defence from offering any desired medical evidence. And we already possess, in the medical officers of our larger prisons, a body of experts whose views are regarded as impartial, are always received with the utmost respect, and are, in nearly all cases, accepted by the jury.

A useful appendix on legal procedure in criminal cases which involve the issue of insanity closes this excellent book.

M.H.S.

Analytical Mechanics : by Edwin H. Barton. (London : Longmans, Green and Co. 21s. net.)

The first edition of this book, published in 1911, has been of great value to those students preparing for a Pass Degree in Applied Mathematics. The second edition has just appeared, and its value has been enhanced by the addition of nearly three hundred questions taken from University Examination Papers. Students owe to Prof. Barton a debt of gratitude for a clearly written, well-arranged text-book, but they will not appreciate the revised price of the book.

Intelligence Measurement : by S. C. Kohs. (New York. The Macmillan Co.)

Professor Kohs's book is an account of an ingenious attempt to form intelligence tests of the "performance" type. It is, however, generally agreed that no "performance test" yet devised measures intelligence with the reliability of the more linguistic type. Some like Terman and others seem inclined to the view that such tests will never test adequately the highest forms of mental processes.

Professor Kohs, however, obtained a high correlation between his tests and the Binet tests, and claims that their diagnostic power is at least equal to that of the Trabue Language Completion Tests or any other similar single type test. But it must be pointed out that his block-design tests are individual tests, and one individual may require an hour of the experimenter's time whereas the Trabue test is a group test which requires only a few minutes to complete. Besides, the author would probably agree that intelligence could not adequately be tested by relying solely on either the Trabue tests or the block-design tests. However, many would agree with the author when he warns us not to rely on a Binet I.Q. alone as a symptom upon which to base a definite diagnosis of feeble-mindedness. An additional differentiating mechanism such as these block-design tests may materially help in forming a more definite decision as to the social or educational handling of pupils. The author, at least, claims that many feeble-minded actually work at a higher level of complexity and efficiency than one would expect on the basis of the Binet mental age, and that their ratings by the block-design tests are a fairer index of their functional efficiency in various occupations than are the Binet tests. The author states that current definitions of intelligence fall roughly into two classes : (1) Ebbinghaus, Zichen and Meumann would call it the power to combine or synthesize ; (2) Binet, Stern and Terman would call it the capacity to adapt. The present reviewer, however, doubts if these psychologists would allow their views to be so summarily expressed. Professor Kohs himself would define intelligence as the synthetic-analytic power of the mind. Undoubtedly his tests demand both synthesis and analysis. It remains to be seen how far the synthesis and analysis required with his coloured cubes can be regarded as typical of all the manifold syntheses and analyses of which the human mind is capable. It may well be that a large number of tests would be necessary to test this elusive analytic-synthetic activity. The book should be consulted by all students who specialise in mental testing, for not only does it give an account of the author's original tests but it contains also a valuable discussion of statistical methods. Ll.W.J.

Ethics and some Modern World Problems : Wm. McDougall. (Methuen. Pp. 240.)

It is possible that this book will arouse the hostility of many readers, as did his "Introduction to Social Psychology" when it was first published ; but hostility has the advantage of stimulating the reader to closer acquaintance, keener analysis and better knowledge of the opposing object.

Professor McDougall, taking as his starting point the present distracted state of the world, endeavours to stimulate thought and to contribute to a better understanding of the conditions involved in this "parlous state" by maintaining that the modern citizen is confronted by two opposed systems of ethics, the universal and the national, and that he finds each inadequate.

He attributes much of the present chaos to the neglect of individual differences and suggests that two conditions for improvement are the fostering of culture and moral tradition nationally and the maintenance and improvement of the native qualities of populations by means of a social organization which will prevent deterioration.

The book is a persuasive exposition of a view which is gaining ground, namely, that modern civilization is demanding too much in the way of self-control in accord with ethical ideals from the mass of its members and that the hope of the future lies in following the natural process of securing improvement through improving the stock. His scheme of social organization with its three classes and examinations in educational attainments as a condition for passing from the lowest class to the probationary is probably unworkable, but it is the least important part of the book, which should be read by all who are interested in the problem of developing ethical concepts in the young of each generation. A.E.C.

Histoire Illustrée de la Littérature Française : par MM. Abry, Audic et Crouzet. (Harrap. Pp. 664. 6s. 6d.)

There is no doubt that both teachers and students of French literature will be grateful to the authors of this book. We are told in the preface that the aim has been " minimum d'appréciations critiques ; maximum de documentation." This surely is what we need but too rarely find in a book of this compass. It is well proportioned : each literary epoch is introduced by a chapter on the political and social background. In treating of authors, the plan followed is " vie, caractère, théories littéraires, étude de l'œuvre, étude de l'art " ; on all of these points the reader is well furnished with quotations and sources, the authors having attempted to inculcate " le sentiment que toute idée qui ne repose pas sur un fait est le plus souvent discutable et fausse."

It is probably less the fault of the teachers than of some examiners that in this country there is so much " cramming " of works of criticism at the expense of the formation of independent judgment. As well as (or sometimes instead of) an intimate knowledge of the subject-matter of the books studied, examination questions often presuppose mature æsthetic judgment in boys and girls still in their teens, sometimes upon subject-matter which can only dimly be apprehended until the reader is old enough to share the emotional experiences involved (*e.g.*, much of the literature of the Romantic Movement). The natural result is that the habit of " cramming " criticism is early developed and difficult to eradicate. The method followed in this book should go far to teach the student how to study.

But the most original and perhaps the most valuable feature of the work is the 324 illustrations. We believe that the authors are justified in claiming that no previous history of literature has been so profusely and at the same time so accurately illustrated. In addition to portraits of practically all the chief authors, there are reproductions of delightful woodcuts and illuminations to illustrate the literature of the Middle Ages, frontispieces, photographs of manuscripts, pictures of 17th century stages, plays and actors, photographs of the homes of more recent authors, caricatures, all very enlightening, and many of which are to be found here for the first time since their original publication.

The scope of the work is from the 11th century up to the present day. A good " reading list " is appended to each chapter. Both paper and print are good, making the book as pleasant to the eye as it is useful and interesting. K.E.C.

Careers and Vocational Training for Educated Girls and Women. (Published by the Women's Employment Publishing Co. Pp. xxviii+190.)

It is fitting that the sixth and most comprehensive edition of " Careers and Vocational Training for Educated Girls and Women " should have been published in the Jubilee year of the Head Mistresses' Association, for it demonstrates most clearly that the pioneer work of this Association has not been in vain. In 1924 particulars are given of 169 different careers suitable for educated girls. One serious problem which concerns all Head Mistresses appears to be accentuated, viz., that in all the principal professions, the earliest age at which training can be begun is 18. As many girls, other than those actually proceeding to a University, leave their secondary schools at 16, a most unfortunate gap exists between the time of leaving school and the beginning of training. This would appear to constitute still another argument for girls to take the first school examination at 17 instead of 16.

The book is written largely from the standpoint of opportunities in London. Little is said to indicate in specific careers that opportunities exist in other large towns for work of a similar kind. It might be inferred that London stands alone in such activities as Care Committee work, Probation work, etc., and that Birmingham, Manchester, Liverpool, and other towns do not provide similar facilities. In view of the opportunities open to-day for women to assist adolescents in their choice of a career, as a result of the increasing interest Local Education Authorities are taking in the matter, it is a little surprising that no mention is made of choice of employment officers, especially for those young people who desire to study industrial psychology, and vocational guidance. These, however, are minor omissions which will doubtless be included in future editions.

The book is convenient in form, possesses an excellent index, and contains well-arranged up-to-date matter which should be of the greatest assistance to parents, teachers, administrative officials and others, who are called upon to give help and advice to girls about to begin their careers. M.S.M.

The Psychology of Reasoning : by Eugenio Rignano ; translated by W. A. Holt. (Kegan Paul, Trench, Trubner and Co. Pp. viii+398. 14s.)

This translation will be a very welcome one, for Professor Rignano's book was undoubtedly an important contribution to the psychology of reasoning. Whether one agrees with his main conclusions or not one must recognise the freshness of his outlook and mode of approach. The work, as the author himself says, grew from being a discussion of reasoning almost to a complete treatise on psychology ; for the analysis of reasoning brings the matter down to ultimate phenomena—"sensorial mnemonic reproductions (evocations of past sensations) and . . . affective tendencies." By affective tendencies Rignano means " organic tendencies which appear subjectively in man as desires or appetites or needs."

The growing complexity of these, as the individual matures, he attributes to the fundamental law of the " transference of affective tendencies," which seems a restatement of the familiar fact that interest may be transferred, or rather may " spread," from the end to the means.

A conflict of tendencies is the essential free condition for " a state of attention." In reasoning, the two conflicting tendencies are (i) the main one : that directed towards the result to be attained, and (ii) the secondary affectivity, which is critical, inhibiting errors, keeping the process in correspondence with reality.

The essence of reasoning for Rignano lies in mental execution of experiments which would otherwise have to be carried out in actuality ; for example in reasoning about geometrical figures we place in imagination one figure on another and so carry out an experiment mentally.

The weak point of Rignano's discussion here seem to me to be that it does not recognise that reasoning is involved even in the carrying out of the experiment itself, though Rignano might reply that even this reasoning would be " mental experiment " of another type.

In consonance with this view of reasoning is Rignano's essentially pragmatic view of the formation of concepts, based on the similarity of a group of objects in reference to their relation to some " affective tendency," some practical need. Even analogies are based on " some attribute, equivalent in relation to some given result to be obtained."

Very suggestive is Rignano's treatment of " intuition " as " a new vision or observation due . . . to the fortuitous coincidence of ordinary well-known actual phenomena with an unwonted affective preoccupation."

After a discussion of the evolution of reasoning, from concrete to abstract and from intuitive to deductive, Rignano gives three chapters to mathematical reasoning. His later chapters on metaphysical reasoning suggest that he has not been fortunate in his metaphysical friends. Suggestive chapters deal with the different logical types of mind and with the pathology of reasoning. In conclusion Rignano sums up his argument and its relation to Vital Finalism.

As will be seen, the book covers a wide range of topics : there are indeed few problems of psychology on which it does not touch, and in spite of occasional one-sidedness in treatment there are few of these problems which it does not illuminate.

C.W.V.

Mechanics via the Calculus : by P. W. Norris, M.A., B.Sc., and W. Seymour Legge, B.Sc. (Longmans, Green and Co. Pp. xii+340. Price 12s. 6d.)

This book is intended for senior pupils in secondary schools and for students working for university degrees in the Faculties of Science and Engineering. The subject matter covers a wide field, including Statics, Dynamics of a Particle, some Rigid Dynamics and Hydrostatics.

On the whole, the book fulfils its principal aim, viz., to bridge the gap between the elementary text-book, which unfortunately so rigidly excludes the Calculus, and the harder books requiring more mathematical capacity than the average student possesses.

The book appears to be on conventional lines—it deals with the usual topics, giving clear and concise explanations where necessary. It should prove a considerable help to the student working independently. There are an ample number of illustrative problems worked in the text and a sufficient number of examples for the student to work himself at the end of the chapters. The printing, diagrams and spacing of the page are particularly satisfactory.

M.H.

The Physical Training of Girls : Mary A. Johnstone, B.Sc. (Lond.), F.L.S. (Sidgwick and Jackson, Ltd. 3s. 6d.)

The comparison of methods of physical training by one who has had opportunities of studying the various systems and noting the results is of considerable interest to everyone concerned in the education of girls.

Miss Johnstone, headmistress of the Central High School for Girls, Manchester, gives us her unbiased opinion of four systems.

Firstly, it is noted that the Swedish System of Gymnastics has an anatomical and physiological basis and a regular method of exercising the whole body which is not to be found in the other systems. The author, however, fears that unless very carefully taught, this system may be too strenuous for school girls. By the wearing of a light shoe Swedish exercises can be performed on an asphalt or grass playground or on a rough wooden floor, and this is one of the most generally recognised advantages of the system. One wonders if Miss Johnstone has quite realised this when she says " One weakness of the system is that so little of it can be taken in the open air." Frequently the necessary apparatus is taken out of doors and successful lessons given. The story of the stolid sulky pupil who had to sign the Punishment Book because she could not stand on her head is hardly appropriate as an illustration of an " agility exercise," for it exposes the particular gymnastic teacher rather than the system.

The Dalcroze Eurhythmic System is dealt with next, but this is primarily a musical and not a physical training, although a great deal of physical exercise is introduced.

The Madge Atkinson School of Natural Movement is well described as the expression of music through the movements of the body, but there is divided opinion as to whether movement dependent on music can be easily regulated to suit physical needs.

Lastly, the author gives an account of the Principle of Greek Balance studied by Mrs. Diana Watts from statuary and paintings. Several helpful suggestions are given in relation to strength and grace, but this system cannot be classed as a complete one.

After weighing the merits of these four systems on which she has made practical observations, the author reaches the conclusion that we must take material from all of them, not one being complete in itself.

This book also contains a comprehensive scheme of physical training, both suitable and practical for girls throughout their school years. M.M.R.

The Chilswell Book of English Poetry, compiled and annotated for the use of schools : by Robert Bridges, Poet Laureate. Parts I and II. (Longmans, Green and Co. 1924.)

Taste in poetry, as in the other arts, should be trained by a study of only the best models. So the Poet Laureate reminds us in his preface, and it is to be hoped that all intending compilers of school anthologies will lay his counsel to heart.

In the anthology before us Shakespeare, Milton, Wordsworth, Shelley and Keats are especially well represented, while the selections from Rupert Brooke, A. E. Housman, De La Mare, amongst others of the moderns, remind us that the treasure of English poetry can yield things new as well as old.

In the arrangement of the two volumes no notice is taken of chronology : the sequence has been determined by movement of thought and feeling. Part II is more suitable for children over thirteen, and generally speaking meditative and reflective poetry has been reserved for this section, while the simpler phases of lyrical feeling are represented in Part I. Explanations of archaic and unusual words are supplied at the foot of the page, and a few compressed notes of comment or necessary information are to be found at the end of each volume.

It is to be regretted that Chaucer is not included in an anthology which claims to be a " primer of English poetry." Perhaps he was banished for " defaute of tonge," but for what reason should Spenser figure in only two stanzas from the " Faerie Queene " ? And why should Herrick be remembered for only one short lyric, when space is found for three specimens of Kipling's patriotic and didactic verse ?

But it is ungenerous to cavil when one is invited to enjoy. Certainly any child or adult who had studied and appreciated even half the poems in this collection would have made a happy entry into his heritage of English poetry. E.M.J.

Improving Schools by Standardized Tests : by S. S. Brooks. (Harrap and Co., London. 6s. net.)

There are countless books and pamphlets dealing with educational tests, but here at last is a book written by a practical school man, now a superintendent of a rural school district in New Hampshire, which gives a lucid and elementary narration of actual experience with educational tests. " It describes in detail how a comprehensive, periodical testing programme was planned and carried out, how the interested co-operation of the teachers was secured, and how the results of the tests were used to improve the schools." The following problems are considered in detail : (1) How to grade the schools fairly and accurately, (2) how to measure the ability of teachers, (3) how to teach silent reading, and (4) how to study.

The author justifies his conclusion that " the first reading instruction should be in silent reading by the principles of association." In the words of Professor Buckingham in the introduction many " will point out that the abilities which are here exalted are of the most formal type. Yet it is entirely possible that the abilities which the tests directly measure are representatives of the higher abilities which the tests do not directly measure and which it is undoubtedly the business of the school to inculcate. For example, rate and comprehension of reading, which the tests purport to measure directly, may fairly be said to condition the acquiring of more complex qualities having to do with taste, attitude and appreciation—qualities which manifest themselves to an increasing degree as rate and comprehension of reading are developed."

Of considerable interest is the method of measuring the efficiency of teachers. The time has now arrived to consider seriously and impartially whether some such method as is proposed by the author is not superior " to the judgment of supervisors making guesses based on class-room observation, more or less perfunctory, of teachers' good looks, engaging personalities, show of energy and enthusiasm, evidence of preparation, handling of supervisor's pet methods, etc. Although such observation is not without value in helping to secure a fair estimate of a teacher's ability, it does not alone furnish a safe and sane basis for judgment and any teacher so judged to be inefficient has a right to complain of unfairness of treatment."

Especially interesting also are the chapters on reading and on supervised study. The book may be strongly recommended to all teachers, for the author's story is clear, vivid and convincing.

LL.W.J.

Bedales, a Pioneer School : by J. H. Badley, M.A. (Methuen and Co., Ltd. Pp. xxiii+231. Price 7s. 6d.)

Theory without practice is vain, practice without theory is blind. Mr. Badley's book is worth reading, not so much for the theories of education it propounds—these reach our ears from other sources—but because it gives an account of a boarding school for boys and girls, the life and work of which is both the source and the embodiment of the theories in question.

Mr. Badley, after describing the underlying aims of the school, acts as cicerone and takes us a personally conducted tour through both junior and senior school. He describes the curriculum andthe time table (which works on a modified Dalton plan) ; shows us workshop, studio, garden, playing fields, and helps us to regard them as essential to equipment as are schoolroom library and laboratory. He raises the question of discipline and discusses the measure of self-government found feasible.

He gives carefully considered answers to the many questions his visitors want to ask and doubtless have for many years repeatedly asked—how do his boys and girls turn out ? What proportion gain high honours at the university, climb in the professions, succeed in business ? What proportion marry each other, and so on.

The statistics given on these matters show that the school compares not unfavourably with others of a more conventional type in gaining conventional ends. But the spirit of the school quite clearly is directed towards a wider outlook. It is for life that the school prepares and life requires more than is demanded by examiners, business or profession.

Bedales seeks to turn out men and women healthy of body and liberated in spirit. The aim is no mean one, nor is the task light. Time alone can show the measure of its success.

M.H.

Psychology for Students of Education : A. I. Gates. (The Macmillan Co. Pp. 489.)

The author, Associate Professor of Education, Teachers' College, Columbia University, has succeeded in selecting from the accumulations of psychological material many facts and principles which have vital significance for education. He deliberately treats the mechanisms of mental life briefly in order to deal with more important topics in detail. Four chapters are devoted to instinctive impulses and activities, followed by three on the problem of learning. The next three deal with intellectual development and the transfer of training, followed by one summarising experimental studies on conditions influencing efficiency. The remaining three are headed respectively Individual Differences, Intelligence, and the Measurement, Organization, and Correlation of Traits.

Most of the facts and illustrations are drawn from scholastic experience, and each chapter concludes with a series of questions bearing mainly on the application of the chapter to problems which teachers have to face.

In the attempt to attain brevity the author occasionally omits references which could have been given with advantage, *e.g.*, the source of the illustrations on pp. 2 and 5, and to the work of Professor Sherrington on the nervous system. Professor Gates tends to regard the human being as a collection of unitary traits and to neglect the possibility of a central urge. In consequence his treatment of the acquisition of ideas, pp. 305-312, is unconvincing, and should be supplemented by reference to the work of such psychologists as Dr. Ward and Professor Stout. Surely if on the first occasion of seeing a square box the mental process is : see box, think box, see square, think square, then the child has performed the fundamental analysis and has the idea of square. Again, one can scarcely believe that Professor Gates means that an individual " really sees with his brain," (p. 304.)

In spite of these defects the book is one of the most stimulating text-books of psychology for students of education that has been published and should prove valuable to the student engaged in teaching and to the student in training. A.E.C.

The Way Out, Essays on the Meaning and Purpose of Adult Education by Members of the British Institute of Adult Education : with an Introduction by Viscount Grey of Falloden ; Edited by the Hon. Oliver Stanley. (Oxford University Press. 4s. 6d. Pp. vi+115.)

This book falls into two parts :—

Part I, " Ideals," including (i) A Vision of the Future, by Viscount Haldane of Cloan ; (ii) The Evolution of a Citizen, by A. E. Zimmern ; (iii) Knowledge as Civic Discipline, by H. J. Laski ; (iv) Education and National Politics, by Lord Eustace Percy.

Part II deals with " Facts," and includes (i) Ideals as Facts, by Albert Mansbridge ; (ii) Administration and Finance, by the Hon. W. N. Bruce, Sir William McCormick and Sir Frank Heath ; (iii) The Humanist Side of Adult Education, by Miss E. S. Haldane.

Brief as it is the book is undoubtedly one of the most important recent works dealing with adult education. It is full of good matter and cannot fail to strengthen faith in the value of the various forms of adult education. A notable statement as to the quality of some adult classes is one quoted from the report of the late Master of Balliol's Committee : " In most classes there are one or two students whose ability would make them conspicuous in any society. . . . The great majority develop greatly, as the class proceeds, in power of reflection, in intellectual detachment, and in ability to express themselves with clearness and precision, and end by attaining a relatively high standard of knowledge and critical power with regard to the particular subject which they have studied." This statement is borne out by other observers, and it justifies a far wider extension of W.E.A. and other adult forms of education. C.W.V.

In Between Stories, by S. Southwold. (pp. 155. Longmans, Green and Co. 1s. 9d.)

A charming selection of fairy and other stories for little folk.

The Psychology of Early Childhood, up to the Sixth Year of Age : by William Stern. (George Allen and Unwin, pp. 557. 16s. net.)

This is a translation from the German of the third edition of the original work by Professor Stern. Those familiar with Stern's book on the development of language in the child know his capacity for detailed observation and patient research. In the present work he takes almost every aspect of child life under his summary, and the result is the most comprehensive study extant of infant psychology.

The development of speech is treated more briefly than in Stern's monograph on that topic ; of special interest is the paragraph on the part played by spontaneity in the growth of language. Three chapters are given to Looking at Pictures, and other parts of the book deal with Memory, Fantasy and Play, Enjoyment and Creative Activity, Thought, Emotion and Will, Suggestion, Punishment, etc.

Though the educator is mainly concerned with childhood beyond infancy, we are convinced that the study of infancy is of great value even for the understanding of later childhood. For one thing it helps to check that tendency to read the adult into the child. Further, in infancy one can study many processes in a more isolated form. Valuable as are experiments on, and observation of groups of children and of individual children at given periods, we are convinced that nothing can take the place of daily observation of the same child over a period of years. For this, Dr. Stern's work will prove a most useful guide, though we think his psychological discussions and educational applications are sometimes unnecessarily drawn out and even at times superficial ; much is descriptive rather than analytic, but that is perhaps inevitable at this stage of the study of infancy. As to the value of the large mass of facts accumulated by himself and especially by his wife, there can be no doubt. From the writer's own observation of young children he can confirm some statements made by Dr. Stern which may surprise many of his readers.

C.W.V.

The Cambridge Syllabus of Religious Teaching for Schools. (Cambridge University Press. 54 pp. 1s. 6d. net.)

" The revived interest of school teachers to-day in religion is remarkable." This sentence out of the Prefatory Memorandum to this Syllabus is, if true, a statement of one of the healthiest signs in modern education. But for this part of their work teachers need helpful guidance, training, and advice. Much of real value to meet this three-fold demand is to be found in this small volume. " The Teaching of Religion " is discussed with real insight in 16 pages. The treatment is short but very wise, and, in some sections, inspiring.

Then follows a syllabus of religious instruction designed to cover, in appropriate stages, the school life between 5 and 18 years. The notes interspersed form a valuable addition to a carefully graded and well chosen syllabus. A selection of suitable hymns and prayers, a few notes on pictures, and an extremely useful list of selected books, complete a book for the publication of which the Cambridge Education Authority will receive the thanks of many teachers and others interested in this aspect of education. A comparison of this syllabus with that issued recently by the West Riding of Yorkshire Education Authority makes an interesting study.

E.C.C.

The New Psychology and the Preacher : by H. Crichton Miller. (London, Jarrolds. 276 pp. 6s. net.).

Many readers of Dr. Miller's two earlier volumes on " The New Psychology and the Parent " and " The New Psychology and the Teacher " have been eagerly anticipating the appearance of the concluding volume. They will not be disappointed, for Dr. Miller has written clearly, forcefully and with wise descrimination on the bearings of analytical psychology on religious thought and belief. In his preface he writes : " My hope is that in so far as the book is destructive it may dislodge no stone that has a justified place in the edifice of modern religious thought ; and that in so far as it attempts to be constructive it may indicate some points in that edifice that can be profitably reinforced." His hope is justified, for the book is stimulating and provocative of thought. Conclusive ? No, but what is of much more value, it compels the reader to think deeply and to analyse carefully many religious beliefs. And withal a deep sincerity and a healthy optimism pervade the book.

E.C.C.

Special Talents and Defects : by L. S. Hollingworth, Ph.D. (Macmillan. Pp. xviii+216. 7s. 6d. net.)

This book is valuable in that it gathers together a good deal of material widely scattered among recent researches, from the special point of view indicated by the title. In an early chapter on "The Relationship among Capacities" Professor Hollingworth suggests there is a marked rapprochement between the Spearman school (emphasizing the " general factor ") and the Thorndike school (emphasizing specific factors). Later she discusses special abilities and disabilities in reading, spelling, arithmetic, drawing and music. As to the first she concludes that reading depends chiefly upon general intelligence, though some of her examples give clear evidence of the existence of highly specialised factors. In concluding this section she states that " as a result of the research of the past five years . . . all children of average or better than average general intelligence are capable of literacy; and that very early use of and interest in reading are strongly symptomatic of general superiority in selective thinking." Her examples include prodigies who could read fluently at the age of two !

As to arithmetic, evidence is cited in support of the view, already generally adopted, that specialised ability or disability shows itself chiefly in mechanical computation, problem solving being closely associated with general intelligence. Some interesting records are given of arithmetical prodigies, and of remarkable ability in drawing combined with low general intelligence.

A suggestive chapter on Individuality and Education concludes a most useful book.

C.W.V.

Educational Movements and Methods : Edited by John Adams, LL.D. (Harrap and Co. Pp. 200. 5s. net.)

This book is a collection of papers by various writers with a general introduction by the editor, in which he groups and summarises the main tendencies of thought shown by the individual contributors.

Sir B. S. Gort writes a sane and balanced article on Co-Education. Dr. Kimmins is very hopeful in dealing with the Dalton Scheme. On the Montessori Scheme Dr. William Boyd is still critical and certainly touches some weak spots. Professor Findlay gives a broad treatment of Eurythmics. The paper on the Direct Method in Modern Language Teaching by Mr. S. A. Richards is cautious but, as it seems to me, very sound. Principal Raymont acutely points out the limitations of Intelligence Tests, but perhaps hardly puts adequately the positive case for them. Mr. Frank Jones warmly advocates reform methods of Latin teaching, of which he has shown himself so good a practical exponent. The other articles (Commercial Education, by F. Charles ; Reformed Mathematical Teaching, by R. C. Fawdry ; The Heuristic Method, by C. E. Browne ; The Teaching of Domestic Science in Secondary Schools, by Jessie D. Davies ; and Experiments in Self-Government in Secondary Schools, by C. H. C. Osborne) complete a volume of essays which, while necessarily of a somewhat " popular " character, seem admirably suited to introduce a young student or teacher to some of the most important aspects of modern education.

C.W.V.

A Sketch of the History of Civilisation in Mediæval England, 1066-1500 : by R. Trevor Davies, M.A., Tutor in the Honour School of Modern History in the University of Oxford, and History Lecturer at Culham College. (Macmillan and Co. viii+102 pp. 6s. net.)

The author tells us that this book is " intended for the general reader who has picked up a superficial knowledge of the political history of the Middle Ages and wishes to know something of its deeper significance." Accordingly political history is but slightly touched on, only in fact in so far as it has had permanent results, and is necessary for understanding the origin of great institutions and discoveries which affect our lives to-day. It is with the origin of these institutions (*e.g.*, Parliament, Trial by Jury), with history from the social and economic point of view, and with the history of culture, that the book is mainly concerned. The reader will find here a wholesome corrective to some of the views of mid-Victorian writers.

As an introduction to further study, and provided the bibliography is made use of, Mr. Davies' book should prove valuable. It covers the Board of Education's new Syllabus (1925) for the Training College Certificate Examination Scheme 3.

E.S.

Motion Pictures in Education : by D. C. Ellis and Laura Thornborough. (Harrap. 8s. 6d. net. Pp. xvii+284.)

The authors have obviously taken great pains in the preparation of this book to make it as comprehensive as possible for the American reader. The pros and cons of employment of motion pictures in schools are set out with care and fairness and the balance is in favour of the " pros " ; whereupon there follows a series of suggestions on subjects capable of illustration, the way to use films in teaching and upon installation and operation ; lists of available films are also given. There is an instructive chapter on the possibilities in the future for the " movies," not only as entertainment but in scientific and commercial fields. The book is well got up and its only drawback is that as an educational cinema propagandist it does not give any help to the English teacher as to how to get films of the right kind. British publishers might increase sales if they would provide for this additional touch, which would give American publications an immediate appeal on this side the Atlantic. " Motion Pictures in Education " makes a great appeal and will perhaps stimulate teachers and administrators and producers and agents in this country to introduce the more general use of the cinema for educational purposes. A.P.B.

How to Organise the Curriculum : by Charles A. McMurry. (New York : The Macmillan Company. 358 pp. 8s. 6d. net.)

Educational thinkers in America are exercising a very great influence upon teaching practice, more particularly in the efforts which are being inaugurated and sustained to solve some of the really vital problems of education. This book illustrates the happy co-operation of theory and practice, for philosophy, psychology and experimental investigation are all brought to bear upon the vital question of the curriculum. Professor McMurry traces the historical development of the curriculum ; ruthlessly criticises it, suggests, with a wealth of argument and examples, its possible organisation by means of " Typical Life Projects " ; demonstrates the value of, and the economies to be effected by, such a reorganisation ; and finally gives a suggested curriculum.

One may not agree with all that Professor McMurry says or suggests, but he has written an interesting and suggestive book, probably of little value in England, for conditions here are so essentially different from those depicted in this book. One hopes that, at any rate, some of the criticisms levelled at American schools are not applicable to English schools, but the book deserves the attention of all those who are interested in attempting to solve the problem of the curriculum.

Wembley in Colour : by Donald Maxwell. (Longmans, Green and Co. Pp. 127. 21s. net.)

This handsome book will provide a pleasing reminder of the most picturesque parts of Wembley to those who have seen it ; to those who have not visited the great Exhibition it may well serve as an indication of its many points of interest. The illustrations are admirably drawn and beautifully reproduced. If Mr. Maxwell has used his remarkable ability for catching a fleeting impression to idealise a little, we do not complain. The book is the better for it, and readers will know better what to look for at Wembley from the artistic point of view. We found the letterpress a more interesting guide than the Official Guide Book.

The Children's Bible. (Cambridge University Press. Pp. 278. 2s. 6d.)
The Little Children's Bible. (Cambridge University Press. From 1s. upwards).

The preface to these books, signed by Alexander Nairne, Arthur Quiller-Couch and T. R. Glover, states that they are based on the Syllabus for Religious Teaching drawn up by the Advisory Committee, appointed by the Cambridgeshire Education Committee, the two books being intended for children of from seven to eleven years and from five to seven years of age respectively. The life of Jesus is central in both books. Old Testament passages are introduced as " stories that Jesus would learn from His mother," or " The Story of His People." The grouping of topics appears to us admirable.

Social Life and Institutions: Joseph K. Hart. (G. G. Harrap. Pp. 423. 7s. 6d. net.)

The author has happily broken away from the theoretical presentation of the problems of Social Science. He succeeds in presenting most of the problems in a concrete setting and increases the effectiveness of his descriptions by a number of photographic illustrations. Most of these are very good, but a few, *e.g.*, interior of library, p. 268, and portion of machinery, p. 101, made no appeal to some secondary school pupils to whom the book was shown.

The book is neither a summary of facts nor a collection of theories—it presents many facts, suggests the problems involved, and gives some guidance concerning the lines along which solutions may profitably be sought. It is in two parts: I, Yesterday and To-day, the development of society; II, To-day and To-morrow, the problems of modern society and the means by which solutions are sought.

Throughout the reader is stimulated to active interest in real problems, but it will appeal most to American readers. A similar book containing examples from the British Empire and giving references to books published in this country would be of great value to those teachers who desire to give their senior pupils a living introduction to social problems.

The Keystone: by Brigadier-General Sir Gordon Guggisberg. (59 pages. 2s. net. Simpkin, Marshall, Hamilton, Kent and Co., Ltd.)

An account of the proposals for organising and improving education of Africans in the Gold Coast. The work of mission schools has been going on apace, but there is danger in widespread but unsatisfactory elementary instruction devoid of character training; the provision of native teachers is an economic need and the higher education of leaders must receive attention. The administrative and financial problems are discussed frankly and an appeal is made for the provision of an education suitable to the native in the stage of development to which he has now attained. The ideas are sound and the little book is well worthy of notice by those interested in the problems of government in the Colonies, as well as by some students of educational history.

Mental Tests and The Classroom Teacher: by Virgil E. Dickson. (London: George G. Harrap and Co. 231 pp. 6s. net.)

Dr. Dickson has given us, in this volume, the results of a great deal of investigation in the use of mental tests in schools of different grades. He has, as the title suggests, written especially for teachers, in the effort to mark out what he " believes to be a safe and sensible path for the teacher to take " regarding mental tests. Though he covers much ground already well-trodden, he has some interesting things to say on the use of mental tests in classification, and on the training of teachers in the use of mental tests.

Early Childhood Education: by Lalla H. Pickett and Duralde Boren. (London: Geo. G. Harrap and Co., Ltd. 220 pp. 6s. net.)

This volume is an interesting account of actual school practice in kindergarten and first-grade teaching. The writers have described " projects " worked out by children in these early stages of school life, and have succeeded in making an extremely useful book. An additional charm is given to the book by really delightful photographs of the children at their occupations.

The Golden Book of Modern English Poetry, 1870-1920. Selected by Thomas Caldwell, with an introduction by Lord Dunsany. (J. M. Dent and Sons. Pp. 384. 7s. 6d.)

A useful collection based on a very wide selection of authors. One of the objects of Mr. Caldwell in making this collection was to show " that the best of the poetry of the modern age is either classical or romanic in character and not, as some critics would have it, of the realistic school."

A Book of French Verse: Chosen and Arranged for School Use, by Marc Ceppi. (Bell and Sons, Ltd. 2s.)

The pieces selected show an unusual insight into the interests of the pupil in each of the six grades which the book aims at serving.

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The Training College Bulletin

Edited on behalf of the
TRAINING COLLEGE ASSOCIATION
by
Lt.-Col. W. J. DOUGLAS,
Saltley College, Birmingham.

No. 3 *NOVEMBER*, 1923

EDITORIAL.

For the forthcoming Conference next Easter the Council has made an important decision which should have a valuable influence upon our deliberations at Aberystwyth. It has accepted the offer of co-operation on the part of the Board of Education to provide lecturers of world-wide repute to help us to examine the great forces and the main tendencies in the development of civilisation. This will form the central theme of the Conference and will be viewed from all the various aspects of human activity. In another column is given a general idea, not yet complete, of how such a comprehensive subject can be approached. Thus, as has been said, the artist, the historian, the scientist and the mathematician, the geographer, the philosopher, the theologian—indeed tutors and students of every subject—should each find his or her place and voice in this main cultural subject. Study circles will be formed to discuss how to bring these treasures into the colleges and schools. It is a new and welcome move on the part of the Board of Education to give the Association the help of such experts in their own subjects as would otherwise be beyond the reach of the Association alone. With the promise of much inspiration and benefit the Council trust that all members will make an effort to attend.

In this issue will be found one or two articles dealing with specific Training College problems. The questions raised in them are essentially those which should concern the minds of all those engaged in Training College work, and it is hoped that other individuals will be stimulated to contribute on these or similar questions. The Branches of the Association are now in full working order and many discussions must be crystallising into definite views. If the various Branches would communicate these considered opinions to the BULLETIN they could not fail to assist the discussions of other Branches. Items of news from Colleges of general interest, whether of special experiences of their own interior problems or other matters, are also invited.

EDITOR.

Result of Elections for Vice-President and Treasurer of the Association for 1924.

Vice-President : Miss Lloyd Evans (Furzedown).
Treasurer : Dr. H. E. J. Curzon (Goldsmiths.).

THE DEVELOPMENT OF CIVILISATION AND ITS STUDY.

There has been no more fruitful and important cultural movement in recent years than the revival of interest in the development and history of civilisation. We say revival, because almost every period of intellectual ferment has set men thinking and writing about this fascinating human theme.

The tragedy of 1914, from which the world has not yet escaped, once again recalled attention to the common heritage of mankind, or more especially to the cultural unity of Western Europe.

In our own country in recent years, Mr. F. S. Marvin, through the medium of his Unity Schools and the valuable Unity Series of Essays (Oxford Press), and, of course, the genius of Mr. H. G. Wells, which gave birth to the "Outline" and the "Short" History of the World, have been the chief agents in stimulating this greatest and most synthetic of studies. It is no mere rhetorical exaggeration to affirm it as the duty of every citizen nowadays to participate in the old yet ever new quest of the things that bind rather than sever the peoples of the world.

The industrial and economic revolution has made the world one as never before. The scientific revolution, ever advancing in our midst, has become the most powerful means for the amelioration—or for the destruction—of the human society. Which of these tendencies shall be accentuated, whether Pasteur or Maxim shall triumph, depends not a little upon our sympathetic appreciation of the common story of mankind—what our civilisation is, how it has come to be what it is, and above all whither it seems to be tending. War or Peace, lingering death or abundant life for all, depend more than ever upon an intelligent, articulate, forceful public opinion.

The Germans, in their schools and books, prided themselves on an unusual interest in this *Kulturgeschichte*; but their study of Kultur assumed a strongly marked nationalistic Teutonic bias. The study of history in this country and in others has not been entirely free from these shackles, and the review of civilisation as a whole is the best means to see beyond a narrow nationalism (without destroying what is good in it) to the world-wide community and essential unity of nations and peoples.

It may be hoped that some day the Training College Association may play its part in extending interest in that study which embraces all other studies and which therefore appeals to all.

E. H. C.

THE PROBLEM OF THE TWO-YEAR COLLEGES.

The article in the June number of the TRAINING COLLEGE BULLETIN is rather of an *ex parte* nature. It is therefore well that other aspects of the case should be briefly stated. There are three points which impress one about the article. First, the writer seems to suffer badly from the self-consciousness which is so marked a characteristic of the teaching profession at the present time, and which makes it so anxious to listen to the opinions of others that it readily believes any person who speaks sufficiently dogmatically. Secondly, the writer, in common with the political party to which he refers (and which claims a monopoly apparently of sound educational principles), totally ignores a large and important section of the community, namely, those who live in the country. Thirdly, the writer seems greatly concerned about the burdens on the shoulders of those responsible for the disciplinary management of the College.

With regard to the third point it will suffice to say that it is the way we get our living, and that the personal contact between staff and student is the strength and not the weakness of the

Two-year Colleges. The loss of this personal touch in the non-residential colleges, whether University or other, appears to many to be one of their greatest drawbacks.

Those who know anything of Training Colleges, at least in the provinces, will know that a system which further handicaps the rural dweller will be not only unfair, but also a distinct loss to the profession. Those students who come from rural areas are often not the most brilliant, partly because of their previous lack of opportunity, but they possess qualities which are of great value in a school. Again, has the writer ever seen a small country school with its variety of age and attainment staffed by a young girl graduate from one of our newer Universities? Had he done so he would have admitted that there is at least something to be said for the teacher trained in a Two-year College.

Passing to "that blessed word"—segregation. What does it really mean and what are its drawbacks? It means that those training for a particular profession are trained together. Even if this is undesirable it must be remembered that the teaching profession in its various branches is a very large one, and that the number in training at any time would probably exceed the number training for all other professions together. The newer universities, one gathers, are at great pains to avoid being swamped by their training departments. Further, training for other professions—medical, legal and clerical—is to a large extent "segregated," because it is recognised to be both necessary and desirable. If it means that because of this "segregation" teachers are looked down upon by members of other professions, and this seems to be the root of the matter, the remedy surely lies not in decrying the present system, but in strengthening the position of the Two-year Colleges, and in encouraging longer courses.

How can this be done? The writer of the article considers that it will be done by making all who are training for the teaching profession matriculated students of some University.

In so far as this means a raising of the standard of admission to training it would undoubtedly be an advantage. But the law of supply and demand operates. Every College, for the sake of its own position, takes the students who seem likely to do themselves and the College most credit. But it can only use the material it has at its disposal.

Surely a far better remedy lies in making the profession sufficiently good to attract the best type, and in raising the standard not only of the qualifying entrance examination, but also the Board of Education Certificate. A greater liberty should be given to Colleges both to terminate the training of those who have obviously missed their vocation and to retain for a third year those who would profit by the further training. The Board's Certificate should be given the status of a Diploma, and be worthy of it, and the list published by classes. Yet it must be found that the Training Colleges form the greatest obstacle to this, since they are the first to cry out when the Board's examiners raise the standard. Mistakes may occur. A college always has the opportunity of pointing them out, and of backing up its opinion of a student who may not have done himself justice.

The Two-year Colleges have run only for four complete sessions since the war. The men's colleges have, many of them, not had a really normal year. In spite of this they have made and are making progress. All they need to ask is to be left alone to develop along their own lines for the next five years, and if they must be criticised, to be criticised by those who know.

R. L. Collins.

COUNCIL MEETING, 10th November, 1923.

Of the many subjects considered, the following are perhaps of more general interest :—

Easter Conference, 1924, *April 8th—16th.*—The Council has availed itself of the offer of the Board of Education to arrange for a course of lectures during the Conference upon "The Development of Civilisation." Mr. E. H. Carter, the Board's Chief Examiner in History, Mrs. Dale, and Mr. Ward, Chief Inspector of Training Colleges, will be associated with the conference committee in organising conferences and study circles on the subjects of the lectures and their bearing upon the work of Training Colleges. The following lectures have already been arranged:—Prof. Breasted (U.S.A.) on "Egypt and the East"; Prof. Nairne, D.D., on "The Biblical Approach"; Mr. H. G. Wells on "History, the Backbone of Citizenship"; Mr. Headlam-Morley on "The Cultural Unity of Western Europe"; Mr. Marvin and Dr. Curzon on "The Approach from the Side of Science"; and it is hoped that Prof. Fleure will lead off with "Origins of Civilisation." Other speakers will be announced later. As the conference promises to be both inspiring and instructive, the Council hopes that it will be marked by a record attendance of members.

T.C.A. Evidence before Departmental Committee on Training.—The thanks of the meeting were given to those members who so ably presented the Training College case before the Committee on the 2nd inst. There is reason to believe that the Committee were impressed by what they heard, and much credit is due to Miss Mercier, who bore the brunt of the cross-questioning, and her colleagues on the deputation.

The T.C.A. and the Burnham Committees.—It was resolved to ask for a special committee to deal with Training Colleges, or failing that, to ask for representation on the Secondary Schools Committee. In the latter eventuality, it was decided to request that the title should be renamed "The Secondary Schools and Training Colleges Committee." Representatives were chosen on behalf of the Association to act on the committee if the request was granted.

Annual Meeting, 11*th January.*—The special speaker will be Mr. A. Paterson, the Chief Adviser on the Borstal System, and his subject will be "The Bad Lad." Miss Lloyd Evans will initiate a discussion on "The New Student," mainly from the point of view of previous teaching experience, and probably Miss Mercier will submit a resolution as a result of the Swanwick Conference on Religious Education. During the week there will also be a conference with the Headmasters' Association, probably centring round the selection of candidates for the teaching profession. All male members of the Association are invited to be present.

CONDITIONS OF SERVICE COMMITTEE.

Members of the Association are increasingly making use of this committee, which is concerned with matters relating to superannuation, salaries, tenure of office, etc. Several members have recently asked for advice and help in regard to eligibility for pensions and reductions in salary, and information has been supplied to them and, in certain cases, representations have been made to the Board of Education.

The Rev. R. Hudson and Professor Valentine gave evidence on behalf of the Association before Lord Emmott's

Committee on Superannuation, and the recently issued report of that committee shows that, in the main, the representations made by our witnesses have been effective.

On Friday, November 2nd, Miss Mercier, Miss Catty, the Rev. R. Hudson, and Mr. T. P. Holgate (Chairman of the Conditions of Service Committee) gave evidence before the Departmental Committee on the Training of Teachers, and there is good reason to believe that one outcome of this will be that the Association will be represented on one of the Burnham Committees which are shortly to be reconstituted.

THE VICIOUS CIRCLE.

It is hoped that the following short articles will initiate discussion on Pedagogy in Training Colleges. The first is the work of a lecturer of some years' experience in a training college. The second that of a teacher who has very great knowledge of teachers, both as colleagues, as members of a large educational society for which he is partly responsible, and as students in a university class which he conducts. The editor is not responsible for the views of either writer.—Ed.

I.

There is a story still extant of an earnest young curate who reproduced the notes which he had taken as a student of Divinity in his lesson to his Sunday School class. In all probability the young man in question had not received a training as a teacher and for his simplicity had only his youth to blame. But there are records without number, not only extant but also increasing, of students from reputable training colleges who commit equally gross psychological mistakes; indeed in some cases they merely reproduce the work they had in training colleges—in certain cases reducing the number of facts given per hour and omitting the hard words.

That such teaching does take place is a fact that no one who mixes freely with teachers can deny, nor is it only very young and inexperienced teachers who take for their model the lecturer in the subject in the college. For example, a headmaster of some standing insists that all the top class of his school shall learn the chief rivers with their tributaries, the chief mountains with their heights in the country which they are studying, because he did it at college and has found it useful. Much of the "parse and analyse" type of literature teaching is due to the fact that the teachers were taught thus and have learnt no other way.

In other words, there is one, and only one, dictum which it is safe to assert holds good for averagely intelligent people—people do as they are done by or in the technical phraseology of our profession teachers teach as they are taught.

It may with justice be said that the training college authorities try to counteract the effects of the excellent and inspiring lectures given in history, geography and English by compelling every student to attend long courses of lectures and discussions on pedagogy, to say nothing of attendance at, and active participation in, demonstration lessons. Let us examine this remedy in detail and try to evaluate its efficacy.

In the first case a great part of the professional training of a teacher does in most cases take the form of lectures —either on child study, on general principles underlying the making of a lesson, or on special method. How formal the lectures are depends to a great extent on the personality of the lecturer but in an appreciable degree also on the number in the class. The strongest disbeliever in the lecture system finds himself thrown back on something approximating to the set lecture when he is faced by seventy students and finds about half are silent members. The discussion class is better, but here the number in a large college is probably about twenty, and "prestige suggestion" sees to it that if the lecturer is respected his opinion counts for more than it should. As for demonstration lessons—they are by their nature strong upholders of the class lesson—an excellent method, but so deeply embedded in school procedure that it needs little encouragement from training colleges. How can one give anything else but a class lesson under the condition of demonstrating? What class will argue or work out its own solution of a problem with a room full of students and a strange teacher? In handwork and arithmetic lessons, when the demonstrator must let the children do much of the work, he nearly always is harassed by the thought that the students are bored—and to a sensitive teacher this feeling is most distressing. Consequently with his mind on the students rather than the children—horrible to relate—he plunges in, demonstrates gallantly, summarises to perfection, and gives the children just enough to do to save himself from the student who will open the discussion on the said lesson by saying "Do you think the children had enough to do?"

In this article I am not concerned with the right methods of training teachers, but with what is wrong in our own method, and I must beg the reader to use that sadly neglected and antiquated psychological method of introspection to answer the following questions.

In your college days what good did you get from set lectures? Evaluate it, if possible, in terms of what you gained by your own reading and of what you gained either by discussion with an expert or with your peers.

Did you ever sit through a lecture and think your own thoughts?

How much use was that hour when you steadily took notes?

Have you any proof that you can listen to and record statements accurately?

If you are one of the people who hear once and know, are you bored by that most skilful of lecturers who succeeds in saying everything at least three times?

If you need to think a thing over before you can make it part of your knowledge, are you unhappy when you listen to the brilliant man who demonstrates for equally brilliant listeners?

If with the utmost friendliness and charm he asked his audience to interrupt him when they did not follow, or to stay and talk it over with him, would you be able to ask an intelligent question or state what you did not understand?

When as a student you had such lectures, how did you prepare for your examination?

Which method, in your opinion, was more effective, your own reading or your attendance at lectures.

Do you remember what you thought and what other students said of people who "dished up" text books?

How much original thought would you say finds a place (*a*) in your colleagues', (*b*) in your own lectures?

What are your conclusions as to the value of lectures—for yourself, of course?

If discussion with fellow lecturers can be relied upon, it is probable that in many cases the man who answers these questions faithfully will admit that lectures played a comparatively small part in his education. It is then equally probable that they do so in the lives of his students. Yet in most training colleges lectures bulk more largely than any other form of work, and the evil does not end here if it is true teachers tend to teach as they are taught.

Nor does it seem reasonable to suppose that lectures in child study, school organisation and special method are more effective than lectures in less professional subjects. Indeed, to talk about the value of first-hand experience, of learning by doing, of the necessity of self-expression and the need of initiative to a silent class of students surely seems more absurd than to lecture on history or geography!

How can people realise the value of self-expression who take notes on it but do not have scope to express themselves? How can they take joy in creation if their work has been the sedulous acquisition of other people's results?

Yet, of course, no system of education is so strong that it can suppress self-expression, initiative and love of creation. The hundreds of young people who pass through training colleges clearly do not leave devoid of self-assertion, a love of experiment, and a passion for going their own way. Indeed, no body of teachers has done more for the improvement of methods of teaching than those who have at some time of their career been elementary school teachers. To some extent they are good in spite of our training and a reasonable number of them will tell you how little they owe to the training college course, how much to some friendly intelligent lecturer and the men of their year.

These men and women make the glorious army of reformers.

But a very great number of the students are not of this calibre; they passed through schools reproducing what their teachers told them and reading those books they were given. The easiest course was to go through college in the same spirit and to pass from it without experiencing the joy and suffering inherent in the process of working out one's own salvation. How then did they keep themselves alive in college? And after? In their private friendships, hobbies, work and games? For them as for most Englishmen, life is in two parts. Crudely stated, life is divided into college or school work, and college or home life. That work can be as absorbing as a tea party and have far more bearing on their inner life than the novel which they get from Mudie's does not become an active belief. Like most Englishmen they pay lip service only to education. They tell their children history should be learnt and never read history themselves, they take their class to the Old Vic, but on their own theatre-going nights choose "Merry Mary's Marriage." And so on. The eternal separation of school and life; it begins in the school, it continues in the college, it goes back to the school. Who will break this circle if it is not those who teach the teachers? I. N.

II.

A training college has been defined as a place where those who know they can't teach are taught by those who don't know they can't teach. Another definition says it is where they teach "teachery" stuff.

Both accusations are as libellous as they are cheap and both are sufficiently true to be resented.

Let us consider some facts of the type that lead to such definitions.

Two mothers whose daughters are in the same form at school were discussing the subject-matter implied by the curriculum. One held that it was useless for girls to learn so much geography, history and mathematics. The other affirmed that it was most useful to her girl as she was going to be a teacher and would therefore have to teach these subjects. She was unsophisticated and was merely putting into word-form a judgment that is at the bottom of modern discontent with education, though it has not yet found clear-cut expression among the masses, viz., the small value, both financial and cultural, of the material handed out in school. The rock-bottom reason for the choice of material for " education " is that it is of a type that can be absorbed by students by the method known as " swat " and regurgitated under the influence of a suitable stimulus (or irritant) at examinations. For generations now the knowledge that has accrued to mankind has been sorted and sorted and sifted and sifted in order to find more and more material of this character. Moreover, there has also been, at any rate until recently, a continual sifting of students in order to find out those who are most amenable to such regime, examination after examination of the regurgitational type having to be passed.

Now to take a second case. A few years ago a young lady who had had no experience in teaching other than the few weeks provided in a two-year course was hesitating between two posts, one in a boys' school (incidentally she had been trained for infants) and one in a training college. A friend already on the staff of the college urged the latter. Note the advantages, ran the argument. In an elementary school you may have to make a fresh batch of notes each year for an indefinite number of years, whereas in a training college one lot of notes will last a life-time. Further, if you've saved the notes which you took in college you will even be spared that trouble.

Very nobly, although there was every possibility that she would have been appointed, she chose the harder path, where it might be added, the salary was better. At the earliest opportunity she changed her school, to the great relief of the head. At the next opportunity she changed again, to the relief of the second head.

This paper is not primarily concerned with the training side of the business, but the lack of teaching capacity in those who have to lecture on teaching methods in particular subjects is rightly resented by students. Apart from anything else it emphasizes the feeling of unreality and kills the spirit of enquiry. Equally resented is the waste of hours spent in listening to second-hand lectures and warmed-up text-books dealing with the traditional " stuff."

It is this last matter that justifies the accusation that the training college is the weakest link in our educational system, or, to use a metaphor also employed, it is the most vicious part of a vicious circle ; the training college is the proper place at which to break the endless sequence of handing on material of which the sole function is that it must be handed on to someone else.

To state the fact very bluntly the average training college lecturer is in a parallel position to the elementary teacher who takes a class from the beginning of Standard I to the end of Standard II, and then goes back to the beginning of Standard I. Each year he becomes more adept in the manipulation of his task so that the gulf between him and his students gets wider, and their apparent ineptness becomes greater, and he feels that he is making wide and deep progress, whereas he is just becoming skilled in a few tricks. It absolutely must be recognised that the lecture method depends not on the requirements of the students but on the limitations of the lecturers. The average lecture could quite well be given by a gramophone, the energies of the staff being transferred to more effective marking of written exercises. With wireless broadcasting of lectures and a loud speaker the cost of education may be considerably and beneficially reduced.

A strange inversion one finds is common in training colleges, though it is not peculiar to them. Interest in a subject is held to be not the function of the student so much as of the lecturer, and that interest is mainly directed not, as one would suppose, to the subject itself, but to the examination results in comparison with those in other subjects. Consequently students have to be for ever on guard against the rival claims upon their time of the various subjects, and hold that they are being adroitly exploited in order that lecturers may escape censure for poor results.

Finally, what is the psychology underlying the making of time-tables and courses of study? Presumably one takes certain pre-determined proportions of geography, history, mathematics and the like, introduces sport at intervals to ensure the proper mixing and is ecstatically thankful at the end of the process if the mixture is not too nauseating. A certain small proportion of the students may even find it palatable. But what is it that determines the choice of subjects, what process of amalgamation is supposed to go on and what evidence is there that it does go on? Does it affect the student's method of thought, and if so to what degree, for better or for worse? Suppose he missed one out would he walk one-sided, or what *would* happen?

In infant schools the psychology of the children has been seriously studied from the time of Froebel onward, and excellent methods have been devised. In senior schools psychology again has led to systems of individual work at present only in the experimental stage, but with limitless possibilities. But what of the training colleges? How is it that lecturers can wax so eloquent on the need for students to realise the necessity of directing the activities and desires of children into educational channels, and yet be so ignorant of the methods of utilising the potentialities of the adult from eighteen upwards? Is it not possible to encourage an enquiry and challenging attitude of mind in place of the unquestioning receptivity that is now fostered and rewarded with certificates?

The team spirit is strong at this age; cannot it be used? The follow-my-leader spirit: must it all run to waste on smoke-room inanities?

Now is the period of the greater resolutions or in their place the greater fallings away. According to the mould in which he is now cast a man may in the future either find his joy in social service or in being correctly dressed.

The exhilaration of the first week in the new surroundings could be husbanded to last a whole session—with many it is already so. Those who come keen on a special line of enquiry should be allowed to go on. Those with open minds should be set on to some grand quest. Those who hope to mop up lecture stuff should be shown the error of their views. Such a scheme is not unrealisable. If the ground covered at the end of the time seems small what of it if the spirit of enquiry is aroused? Anything rather than the devastating soul-killing flood of lectures. Apart from drawing, practical science and other forms of handwork the best bit of real work done is the preparation of a criticism lesson under skilled guidance.

One thing is certain. Reform of the training college is not likely to be much longer delayed. If the reform does not begin from within it will be imposed from without.

O. U. T.

CONFERENCE ON RELIGIOUS EDUCATION—SWANWICK, OCTOBER, 1923.

The second Conference on Religious Education was held at Swanwick from Friday, October 26th, to Monday, October 29th, 1923.

Dr. Wodehouse welcomed the members of the Association and other guests.

Canon Blofeld opened the Conference by calling attention to the increased numbers this year and the presence of so many teachers. He had great hopes that their contributions to the discussion would help the Conference to formulate, this year, some definite and practical resolutions.

The first subject for discussion was "Principles and Methods in Religious Education."

Dr. Wodehouse opened with a paper dealing with the child's point of view. From the reminiscences of a number of students she came to some of the following conclusions. The main difficulties in the religious life of the child seem to occur after the age of seven. The majority of her students looked back with happiness to the teaching that they had received in the home and in the Infant School.

After this age there was record of the monotony caused by the repetition of the same prayers, the same hymns and the same Bible stories. She felt that the daily scripture lesson in the elementary school was too frequent, and that a great improvement could be effected by the substitution for this of two or three longer lessons in the week. She felt that the more intelligent the child the better remembered was the story and the sooner it staled.

A second great burden to the child was the compulsory learning by heart which had seemed to prevail in most of her students' schools. Cruel unhappiness in the Friday morning lesson had been evident, even though the failure to reproduce the memorised passages correctly carried with it no special punishment. The beauty of words and passages had been lost in the strain of memorising, and very few of her students had appreciated in later years the beauty of passages which they had learned without understanding. The singing of hymns seemed to have been a great solace, but even this had been spoiled in some schools by compulsory learning by heart.

Speaking of faults of atmosphere she described the nervousness often produced in children by a wrong representation of God.

The difficulties of the ten year old were increased by an intense shyness which too often made him out to be far more materially minded than he really was. A new sense of the supernatural awakened in the child at this age, and here came a need for a real philosophy of life. Without it the child made no discrimination between religion and magic. In dealing with the eleven year old great care was needed in the phraseology used by the teacher in speaking of God. Difficulty often arose through the use of somewhat meaningless conventional phrases. Though his questions were not always put into words the eleven year old was a critic.

In the adolescent stage any freshness of teaching giving opportunity for discussion had been greatly valued.

Miss Hammond, from similar evidence, confirmed the conclusions of Dr. Wodehouse. Her students had realised that Scripture was often crowded out of the time-table, or taught by people who had little knowledge and less interest in the subject. She felt that greater elasticity should be allowed to teachers in the matter of doctrine, so that the more spiritually minded among them should be enabled to present to the child that change of values which Jesus demanded. Giving suggestions for a syllabus she stressed the importance of the spiritual over the miraculous, and pleaded for teaching with the mind as well as the heart.

A discussion followed, in which some of the following points were made :—

That Scripture should be related to modern life by means of subjects rather than by isolated stories.

That the Dalton Plan had been used with success in teaching Scripture in some schools.

That there was a need for some sort of children's Bible, and that Dent's Shorter Bible met this need, Dr. Doyle, speaking on "Religion in and Through School Life," emphasized that religion should enter every phase of school and college life. The service of man was undefiled religion. He described the social activities of the students of his college in connection with the Society of St. Vincent de Paul. Other members of his college were defending the Christian faith by speaking regularly in Hyde Park. He felt strongly that service created an appetite for knowledge.

During the discussion, social activities in other colleges were described, such as after-care work, settlement work, and the activities of the Student Christian Movement.

Miss de Lissa gave an account of an experiment in public worship which was being carried out in her college. A subject for a service was chosen by the college and various aspects of it were worked out by groups of students in turn. Each week one group arranged the service and the whole college prepared themselves beforehand by meditation.

An experiment had been made in training children between the ages of five and seven in the use of silence. In a short time the children, who had at first been guided, were able themselves to suggest subjects for prayer and meditation.

Yet another had a silence room, which children were free to use in school hours.

Various suggestions were made as to the conduct of school worship, such as the memorising of psalms by chanting them in class, processions and the encouragement given to children to compose their own prayers and litanies.

It was generally felt that there was a great need for more dignity in school worship.

Professor Moberly, in an inspiring address, stated the problem of the personal treatment of the individual in its relation to treatment by mass rule. The modern movement tended towards individual treatment and a greater reverence for human nature. The moral life was a process of adjustment and any tampering with it involved some kind of desecration. He contrasted the treatment given to *John Inglesant* by his guardian and Dr. Arnold's treatment of *Tom Brown.* He feared that the modern educator was not free from the error of attempting to mould the minds of his pupils. On the other hand rules had their place and were necessary in helping the child to adjust himself to his ever widening environment, the home, the school, and the world. Guidance was necessary to meet the fatalistic attitude in regard to human limitations induced by some modern psychologists. How was it possible to deal with the adolescent who, on the assumption that human nature was prima facie good, wished to experiment with his impulses ? Two extremes were to be avoided, the self-righteous attitude in guiding the young, and the sentimental attitude which blurred the distinction between right and wrong.

All great religions postulated a fundamental dualism. The purpose of life was not merely to work out the natural impulses, but to re-mould them on to a higher plane. Even modern thinkers who were not in sympathy with organised religion could find no force short of religion that was strong enough to achieve this end.

He questioned how far the religion that prevailed in the colleges of the present day was adequate. Twenty years' experience showed him that religion was much more alive to-day than it had been. Its expression was found in social service. But he questioned whether there was to be found that spiritual depth, rooted against the vicissitudes of life, which appeared in the writings of spiritual leaders of the last century. Present day religion needed to be more Theocentric.

At the final meeting the following resolutions were passed for recommendation to the Council :—

1. That the T.C.A. memorialise the Training Colleges in the sense of making provision for the fuller nurture of the students' religious instincts.
2. That this Conference advises the introduction of a minimum general course in religious instruction, part of which should be devoted to method, in every Training College.
3. That this Conference urges that students should be allowed to take an advanced course in religious knowledge, which should be put on a level with other advanced courses.
4. That the Council be asked to appoint a small standing Committee on religious education.
5. That the Council be asked to approach the Board of Education with a view to securing the continuance of the course in religious instruction for Secondary School teachers and their being made available for Training College lecturers.
6. That this Conference proposes that the Board should be definitely approached with a view to the recognition of a third-year course in religious knowledge on the same lines as other third-year courses.
7. That the Council should secure a full time short course for teachers in religious education.
8. That the standing Sub-Committee should be asked to consider the advisability of organising a retreat for teachers at the beginning of every session.

The Conference was attended by fifty-eight members.

NEWS FROM COLLEGES.

The New Foundation of the College of St. Mark and St. John, Chelsea.

St. Mark's College, Chelsea, and St. John's College, Battersea, have trained some thousands of teachers during the past eighty-three years. It is rather difficult to state which was the earlier foundation, but it may be said that in the early part of 1841 ten students were resident at St. Mark's and that, while the National Society had been deliberating, there had actually been set up at Battersea the institution which in 1843 was taken over by the National Society. It is hardly necessary to enumerate the eminent scholars who have been Principals of these institutions and pioneers of the work of elementary education in this country. Necessity has caused the amalgamation of the two Colleges as a new foundation under the title of the College of St. Mark and St. John. St. John's required much money for building operations; St. Mark's has the space for this purpose. The St. John's freehold belongs to the S.P.C.K. and St. Mark's to the National Society, and therefore it seems to be a wise decision on the part of the National Society to house the two foundations, dear to so many, under one roof to carry on our important work.

Principal Hudson, of St. Mark's, has retired after twenty-six years' service, and we all know the value of the work he has done. Principal Dr. Dix, from St. John's, is head of the new foundation and there are no qualms over the future brilliant success of the College of St. Mark and St. John.

C. H. Swann, *Dean.*

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THE DEVELOPMENT OF CIVILIZATION.

An Easter Conference was held at Aberystwyth from April 8th to 16th, 1924, under the co-operation of the Board of Education and the Training College Association.

The Board was represented by Mr. E. H. Carter, H.M.I., Chief Examiner in History, and his colleagues, while 131 members of the Training College Association, including twelve Principals, attended the Conference.

By the kind permission of the University College authorities, the members of the Conference were housed at the College Halls, and had the use of the College buildings for lectures and discussions.

A most interesting course of lectures on the central theme of " The Development of Civilization " was given by leading authorities on the subject.

The Conference opened on Wednesday, April 9th, with a very fascinating lecture by Prof. Fleure on " Some Origins of Civilization." His main points were that certain changes occurring at the threshold of humanisation involved greater demands on maternal sacrifice. The increase of the size of the skull and brain, the assumption of bipedal locomotion and the adoption of stereoscopic vision are three vital points in development. The change of climate and environment at the time of the last great retreat of the ice in Europe, and the resulting need for new devices brought about a great human crisis: the hunt was less remunerative and technique in bone and horn declined. It was necessary to economise in the use of flint, and that technique also decayed, but the art of stone grinding and of the manufacture of hafted smooth stone axes with transverse cutting edges was evolved. From the later period of transition to metal we have in Europe evidence of culture spread over wide areas, sometimes along zones of bare land, sometimes along the coast or by sea.

Later Prof. Fleure took a party to look at the earthworks on the south side of the town. He gave an introductory talk which showed the points to be looked for, and then proceeded up the hill at the back of the town. There he showed the construction of the camp with its circular earthworks and the interesting extension on the adjoining hill, probably used as a cattle kraal. He then gave an historical survey of human settlement in the district from the prehistoric men who used the flint instruments found near the shore, to the growth of the new lodging houses under the industrial regime. The points of special interest were the Celtic earthworks of Roman times on which the party were standing, the Roman fortification on the opposite hill, the little mediæval town on the peninsula, and the gradual growth of the University as an expression of the Welsh national revival.

All members of the Conference who attended the lecture and excursion felt stimulated and vivified by the personality of the lecturer and the interest of the subject.

On Monday evening Mr. Perry, in the absence of Prof. Elliott Smith, gave an interesting address, illustrated by lantern slides, on "The Diffusion of Civilization."

He said that the world of anthropological thought is at the present moment rent in twain by the dissensions of two schools. One of these claims that the similarities in practice and belief which undoubtedly characterise the cultures of vast members of communities existing or vanished, can be explained only as the result of some innate tendency of the human mind under the influence of certain objective forces, to produce similar ideas and practices. The other school urges that such similarities can only be explained as the outcome of diffusion.

Mr. Perry pointed out that the only way to reach any definite conclusion was by careful and prolonged research. He showed maps illustrating the result of the researches in which he had assisted Prof. Elliott Smith, on the presence of megaliths in different parts of the world. The fact that these were erected on a general plan and were found chiefly near the sources of gold and tin, was evidence in favour of the view of diffusion of the earliest Egyptian civilization in very remote parts of the world.

On Thursday, April 10th, the Conference members had the pleasure of listening to a most stimulating lecture by Prof. Rothenstein on "Art and Civilization."

In enlarging upon the vastness and difficulty of the subject Prof. Rothenstein showed how we were up against the mystery of the creation of wonderful works of art in which little interest was taken at the time of their production. He suggested that whatever the beginning of man's æsthetic perceptions may be, the value of creative activity was easily recognised. The artist was exploited by the king and priest for their own advertisement and limited ends, but in spite of this he was always able to send out a message to suffering humanity and to convey the power and beauty of the human spirit.

Prof. Rothenstein showed how the earlier works of art were always portrayals of the life of the time whatever the subject, and therefore intensified the human interest.

He strongly urged that we should try to get away from the pursuit of æsthetics and taste, and return to the pursuit of truth in its simplicity. He hoped the time was not far distant when instead of collecting works of art in museums and picture galleries, we should return those we had to their places of origin and aim at making use of the creative power of our own times, thus giving the creative people of today a chance of putting down their own interpretation of life in its true value.

Later in the day a paper on "The New Past," by Prof. Breasted, was read. Prof. Breasted pointed out that there were spots in the world to-day such as the banks of the river Somme, in northern France, where chance has brought near together and left lying side by side, relics of the earliest prehistoric savages and the evidence of so-called modern civilization. Here can be found the jagged fragments of steel shells, lying close to flint hatchets, the latest and earliest surviving weapons of man. There they lie, and the whole sweep of human history lies between them.

Professor Breasted then gave a short but comprehensive outline of the wonderful rise of civilization on the banks of the Nile. The significance of this to us is in the fact that it was rising for the first time on earth. Rarely does the modern pilgrim in Egypt realise that there was no inheritance of culture for the hill dwellers. In their own deepening experience and broadening vision we find the magic which transformed these primitive hunters and their little settlements of wattle huts into a great society dominated by masterful men.

On Friday, April 11th, Dr. Curzon read a stimulating paper on "The History of Mathematics."

Dr. Curzon showed how the tale of the growth of mathematics was a continuing story of achievements won by reason; it serves to link together all the different civilizations; it is an epitome of the steady march of men towards freedom and truth.

He then gave a most interesting survey of the growth of mathematical ideas from the earliest records of man's interest in mathematical problems, found in the lake dwellings in Switzerland, up to the publication of Einstein's work in 1905.

On Friday evening Mr. Ramsay Muir discussed the "Problems of Political Unity."

His main thesis was that, visible at the present time, there were two distinct trends, viz.:—

(*a*) The tendency for the desire of small nations for separate nationality, and

(*b*) the tendency towards the desire for political unity of larger groups.

These are reflections of a mental conflict of which every thinking individual is conscious. One of the greatest problems of our generation is to find a solution which will unify these apparently opposing tendencies.

His contention that force had been the basis for the formation of all the big groups which now have more or less homogeneity led to a very animated discussion.

In conclusion Mr. Muir said that in the League of Nations we have an example of an attempt to achieve the voluntary co-operation of free cooperating units. It was only in the absence of compulsive force and only in the endeavour to develop a more or less voluntary co-operation that some form of political unity could be achieved.

On Saturday, April 12th, Mr. Headlam Morley gave the members of the Conference an address on the "Cultural Unity of Western Europe," which stimulated with its breadth of view and philosophic outlook.

In discussing the various dominant civilizations at different periods of the world's history he showed that that of Western Europe was the only one which had spread its culture more or less throughout the world.

The whole history of Europe was one of continual strife between different sections, anarchy and disunion, but combined with cultural unity.

He regarded energy as the dominant factor of this civilization, energy mental, moral, and physical, and as a result of this dominant energy Western civilization was setting out on its last great adventure—that of world dominance.

In the evening Sir Walford Davies gave a talk on "Music as a Universal Language," and incidentally illustrated his point by getting everyone of his audience to sing.

On Sunday, April 13th, a very comprehensive paper on the "Biblical Record" by Dr. Nairne was read.

In the evening Sir Walford Davies taught the members of the Conference how to sing hymns, the achievement of which was much enjoyed.

On Monday, April 14th, a paper was read by Prof. Unwin on "Some Economic Factors in General History," which many of the audience felt most inspiring.

Prof. Unwin said that history could not be adequately explained by reference to economic factors only. He believed that the true history was the history of man's spirit, the development of social consciousness.

The great illusion of history is that war is inevitable. This is being gradually undermined by all serious historians, who are showing that war is a destructive, not a creative, force. Creation is never inevitable.

Prof. Unwin concluded by urging that political and economic history were not subjects for schools. What is needed is the history of civilization, and the growth of man's spirit, of social development in its largest and most spiritual sense. Only thus should we lead the next generation on to creative development.

Later in the day Mr. Marvin spoke on "England's Place in Western Civilization."

He showed that England's geographical position made her relation to Europe peculiar. She was of it but not in it. He surveyed English history in relation to Europe and showed that at each stage there was something evolved in English practice which went to build up a nationality. It was not until the eighth century that Britain really obtained national consciousness. The Hundred Years War strengthened national spirit. By the age of Elizabeth England's place in civilization was defined.

Finally Mr. Marvin sgugested that the British Commonwealth with the co-operation of its self-governing units has become the type for the World Commonwealth in the League of Nations. This freedom for the individual combined with co-operation, adaptation, and accommodation to new ideas in practice, and continuity in history, are the three clearest marks of the English contribution to Western civilization.

On Monday evening Prof. H. J. Rose gave a most interesting lecture, illustrated with slides, on the "Classical Civilization of Modern Europe."

On Tuesday, Prof. Singer, in dealing with the "Birth of Modern Science," inspired the members of the Conference by his comprehensive survey of the growth of scientific ideas and their relation to art. He showed how the advance in anatomical knowledge was accompanied by an advance in the portrayal of the beauty of human form, while mathematical advance led to modern scientific methods.

The development of the ideal of an open universe which has gradually superseded that of a closed universe, Prof. Singer considers the great difference between the modern and the mediæval mind.

In the absence of Mr. H. G. Wells, Mr. Headlam Morley gave a final talk on the ethics of historical teaching.

The members of the Conference were also entertained by the Principal of the University at the National Library, and the Geographical Section enjoyed an excursion kindly conducted by Mr. Platt.

The unanimous feeling of all who attended the Conference is that it has done much to stimulate thought. The aim of the Conference was to find some unity of thought, some universal tendencies which could be regarded as an aim for further study. All who had the good fortune to be there felt that this aim had been achieved and that the main trend of the lectures and discussions was that the study of Civilization is the study of the evolution of the human spirit.

It is to be hoped that further Conferences of this type will follow from the success of this one.

AN ABER-(O)RATION.

This little rhyme erratic
May by some be thought ecstatic,
But your indulgence we beseech until the end;
For we sing a song historic
Of the great ones pedagogic
Who at Aber, late, a happy week did spend.

The work they did was hectic,
An attempt to make synthetic
World knowledge as the basis of all thought.
And the lectures were terrific,
Some a little soporific !
But most exciting was the day on which there fought

The Philistine dogmatic
With his axe to grind politic
And the valiant David searching for his sling ;
Or the Celt with his harmonic
Pentatonic scale melodic,
Making veritable Goths the rafters ring.

Nor forget the philosophic
Friend of courts, so optimistic,
Whose view was less progressive than urbane ;
Nor the expedition Fleuric
To find flints so prehistoric
In a factory—with a chimney ?—but in vain !

And that to Bridge Satanic
With its scenery titanic,
And its giddy flights of steps and notice boards ;
Yet another—more pathetic
Which was over energetic,
For they had to walk—next time they'll hire some Fords.

In a building bibliophilic
By ways peripatetic
A number sought instruction—and their tea ;
While others less noetic,
Perhaps more apathetic,
Watched the beauties of the Welsh hills and the sea.

But it was not all scholastic
As the hours were most elastic,
Yielding time for morning coffee, cakes and chat,
And evenings, one dramatic,
Yet another, polyphonic,
When a social made us very far from flat.

In one building, cold and arctic,
Some preferred a hall more tropic,
Where at whist a genial atmosphere was raised,
And with prizes paleolithic
Given with kindly wit rhetoric
Our friendly hosts with merriment were praised.

Now, to end this tale authentic
Which may nearly drive you frantic,
There is only one thing more for us to state,
That, although our Wells was mythic,
And world progress problematic,
We'll confer again—so fix another date.

M.H.R.

THE ORIGINS OF SCIENCE.

Professor Singer's lecture on "The Origins of Science" was one of the events of the Aberystwyth Conference. It took the audience to a standpoint from which few have been in the habit of reviewing their history, and while there is undoubtedly justification for Mr. Headlam-Morley's plea for the claims of political history, this lecture and several others given during the Conference has probably confirmed the opinion which has been gaining ground in some quarters that more attention should be given to other aspects. Anyone who has read the history of education or of scientific progress will admit that it is extremely interesting. There is the story of human endeavour, and often history which has been studied in other connections has been enriched and given greater significance by it. The opener of one of the discussions remarked, "We never learn from history what to avoid"; a somewhat forcible personage who suffered "dithering idiots" not at all, immediately added the words "or what to do." Very likely the dictum is true, but that is not the fault of history. History contains the lessons if people would only study and apply them. The politician can learn the lessons, the Foreign Office presumably consults the Historical Adviser, and history has its lessons also for the educationist and the scientist. Quite apart from the development of scientific method for use in the laboratory, it is a good thing to review the achievements of mathematical, natural and biological science at different periods and learn something of those who have wrought them; it is a sound discipline for the student of science to possess some knowledge of the lives and times of the pioneers, of the conditions under which they worked, and also of the agents affecting the stream of progress. There was a time when science was not taught in schools as a human product; many causes contributed to this, but among them was a kind of materialism due to the submission of physical and mental phenomena to mathematical interpretation and an ever-growing appreciation of the unity of science; the "man" in whose mind the great concepts of science originated was relegated to the background. This is regrettable, because in some cases among students, not only among those in University Departments training to become teachers, but also among others on the science side, specialisation begins early, humanism is made secondary, while the principal subjects are scientific, and after matriculation the students go on with few facilities for the cultural benefits of literary and historical studies.

The narration of an episode in the making of science can bring to a lesson an enrichment that lies not in the story alone nor in the topic of study by itself; perhaps one might compare the whole to the mental quality of a musical chord which is fuller than the sum of those of the constituent notes. The accidents of discovery, the results of deliberate purpose and the synthesis of thought give a romantic turn to science: Copernicus, the father of modern astronomy, never saw the planet Mercury; Gassendi managed by a narrow margin of time only to see a Transit of Venus; Pascal carefully planned the Puy de Dome experiment; the achievements of Galileo and Newton are complementary; think also of Pasteur and Lister for illustration of romance, or turn to Taylor's account of Gerbert in "The Mediæval Mind" for an idea of the man whose mathematical wizardries were touched upon by Dr. Curzon. With thousands of illustrations in every branch there is no lack of romance in science. Wise teachers make proper use of the "incidental" in their work; the science teacher who knows his history can make valuable links with other studies by the judicious use of interpolations when opportunities offer themselves and still have due regard for the just claims of the science under review.

Few persons can fail to be interested in Roger Bacon, or Albert the Dominican and their pleas for scientific method for observation and yet more of it in the cause of organised and reliable knowledge. They accomplished much in an age commonly supposed to be obscurantist, and some of the credit that is often assigned to a 17th century Bacon might quite reasonably be given to him of the 13th century. One must be cautious about pressing origins too far back. Professor Fleure's humorous story that an ancient civilization was suspected of knowing about wireless because no wire was found by the excavators, has its warning; and though it is easy to ascribe wonderful knowledge to early investigators the teacher must play for safety and examine the stories critically.

Probably most people will admit the value of the history of science in the teacher's equipment either for his personal or professional edification; it is, however, on the disciplinary side that it has no little value in making for humility; the wise man is humble, and when he is wise enough to be humble he is an agreeable person.

A. P. B.

THE CONDITIONS OF SERVICE COMMITTEE.

The Committee has been concerned with the prospect of the setting up, by the President of the Board of Education, of a committee for the separate consideration of the salaries of Training College staffs. The Council of the Association decided that its representatives on the Standing Joint Committee of the Training College Association and of the Council of Principals should get that body to approach the President of the Board. This was done, and on May 6th the President received a deputation consisting of Professor Bompas Smith, Miss Allan, Dr. Curzon, Mr. Holgate, Mr. Hudson, Miss Lloyd Evans, and Dr. Reaney. After members of the deputation had spoken, the President of the Board stated that he must take time to consider the representations which had been made to him, that there was no hurry, as the question as to what alterations should be made in the scales of payment for Training College staffs could not be gone into until the existing Burnham Committees had arrived at a solution of the problems on which they were engaged. When that was done, the question of the best method of determining suitable arrangements for Training Colleges would arise, and the President gave an undertaking that we should be consulted.

The Committee has completed an important piece of work in drawing up a form of agreement for teachers engaged in full-time service on the staff of a Training College. It is hoped that copies will be in the hands of all members of the T.C.A. by the time this appears in print. It will be noted that the agreement makes provision for appeal in case of dismissal and for the lecturer concerned to be "accompanied by a friend." It is hoped that in cases of serious difficulty members will remember that the T.C.A. is willing to give advice and, if necessary, to provide the "friend." Before signing any agreement which differs materially from the one drawn up by the T.C.A. members are invited to submit it for criticism to that Association.

The number of members writing for advice in regard to salary, superannuation matters, and general conditions of service, has considerably increased since the last issue of THE BULLETIN. It has been decided to approach the Board of Education to request that improved conditions be sanctioned in certain particular cases.

Members of the Association are reminded that much time is saved if they give full detailed particulars when writing for advice.

THOS. P. HOLGATE, *Chairman.*

SECTION REPORTS FOR 1923.

Principles of Teaching.

The Section has been active generally throughout the Branches, as will be seen from the summarised reports given below.

North-Western Branch.—Three meetings of the Section have been held. At one a paper on the place of Psychology in the Training Colleges was read by Dr. Olive Wheeler. A sub-committee was appointed to draw up a questionnaire on "School Practice" and report on the replies. A copy of this report is appended.

Number of members, 92.

Convener for 1924, Miss A. Paterson, University College, Bangor.

Southern Branch.—Three meetings have been held, two on School Practice and one on Technical Exercises.

Suggestions were made that conferences between School and College staffs would make co-operation in practical training more effective; that entrants without previous experience should have a short period of intensive training in good schools in their own localities previous to entering College; that the Board of Education should be asked to look sympathetically on any approaches made by the Colleges to the Schools for greater liberty to experiment.

A discussion was held on the award of Credits for Teaching in the Board's final examination. It was felt that the Board of Education attached greater importance to the written paper and that the questions set frequently demand too much experience; and it was suggested that either two marks be awarded in the Certificate Examination, one for Practical Teaching and one for Theory, or else that equal weight should be given to these in awarding Credits.

Number of members, 91.

Convener for 1924, Miss B. L. Hopkins, Diocesan Training College, Brighton.

North-Eastern Branch.—Three meetings have been held. It was felt that it was desirable to institute a probationary period for all teachers after their period of training. There was also a strong feeling that some form of specialisation in teaching in schools was desirable; that marks be given separately for Principles and Practice of Teaching; that for special ability in practical teaching "mark of commendation" be given; and that an exceptionally good paper in Principles of Teaching be eligible for Distinction (thesis being optional).

Number of members, 88.

Convener for 1924, Miss Rawson, City of Leeds Training College.

Eastern Branch.—The Principles of Teaching Section of the Eastern Branch have had no section meetings, but at the general branch meetings there have been discussions on some topics connected with Principles of Teaching.

Number of members, 23.

Convener for 1924, Miss Hill, The Training College, Norwich.

Midland Branch.—Three meetings have been held, at one of which steps were taken to obtain the views of members by means of circulating papers on "Intelligence Tests in relation to the Training of Teachers" and "The Dalton Plan"; these symposia are being circulated. A questionnaire on "School Practice" was prepared and a discussion on the answers was held. The general conclusions are appended.

At one meeting Canon Bater opened a discussion on "Liberty and Licence in Training Colleges."

Number of members, 41.

Convener for 1924, Miss Clarkson, St. Mary's College, Cheltenham.

Total members of section, 335.

North-Western Branch: *Principles of Teaching Section. Summary of replies and report on Questionnaire on "School Practice":*

The majority of Colleges spend approximately four-fifths of school practice period in practice in schools and one-fifth in visits, demonstration lessons, etc.

There is considerable diversity of practice as to when the first practice in teaching occurs.

A few Colleges only arrange for specialisation in the teaching of subjects by students in addition to those taking Special Course A.

Interesting answers were given in reply to the question "In assessing the teaching mark what weight do you attach to the following points respectively: (*a*) personality, (*b*) knowledge of subject, (*c*) effective knowledge of method, (*d*) power of class control?"

With regard to weak students, some give special help without additional practice, others with additional practice; opinion was divided as to whether the improvement was worth the effort; this leads to the consideration of further supervision or probation during the first year after the students leave College, as without such continued care in specially chosen schools the effort expended on weaker students will almost inevitably be wasted.

There was little change in the grading of students in practical teaching during their courses: one College gave figures for 227 students, 75 per cent. were unchanged, 11.7 per cent. were raised, and 13.2 per cent. were lowered during their training.

Students with no previous experience tended to change from one grade to another more often than those with experience; of 52 such students at the same College as above, 62 per cent. were unchanged, 22.3 per cent. raised, and 17 per cent. lowered.

More help from the school staffs in planning lessons, in criticising, and in giving advice in regard to method would be welcome.

Midland Branch: *Principles of Teaching Section. Summary of replies and report on Questionnaire on "School Practice."*

Most Colleges in the area would seem to take the first period of practice during or at the end of the first year of training. The early part of this period is, in many cases, mainly observational. But the Colleges all agree in concentrating, in the main, on actual teaching.

In several Colleges facilities are offered to students, other than Course A students, to specialise in their best subjects.

The answers to questions on the additional practical work for weak students indicated differences of procedure, but on the whole, extra teaching under special supervision, and demonstration lessons would seem to be the methods most favoured, though in some cases it is felt that results do not justify the additional work. The grading of students in practical teaching does not indicate, in most cases, any marked changes at the beginning and end of training. The most notable differences in grading are found among those students with no previous experience.

Some Colleges express the desire for more practice, especially for the inexperienced students.

One College has carried out an interesting experiment in school practice, but the detailed results are not yet available.

The need for co-operation between School and College staffs is emphasized. More assistance from the former would, in some cases, be welcomed.

Greater facilities for experimental work and for more detailed application of "principles" would be valuable.

In general, "block" practice is preferred to "extended" practice, or, at least, is more widely used.

Science.

The work of the Science Section during the last year may have been on right lines but not particularly fruitful in results.

At the January, 1923, meetings of the Section it was decided that the General Convener, through the Branch Conveners, should circularize the members of the Section for the following details :—

1. The branch or branches of science studied in his or her College.
2. The syllabuses followed and the time devoted to the subjects.
3. The actual number of students taking a science course and the number of students in residence, or attending by day, as the case may be.
4. That members should provide lists of schools in their districts where good science is done.
5. (See Rule X, No. 4, of Constitution T.C.A.) That in linking up the activities of the Branches, the General Convener should receive reports of meetings from Branch Conveners and circularize each report to other Branch Conveners and thereby, though independent action might be taken by any one Branch, it would be in touch with the work of all other Branches.

Tabulated forms on items 1, 2, 3, and 4, for filling in and return, should have been received by all members of the Section.

Returns from Colleges to date are :

Eastern Branch.. ..	5
Midland Branch ..	4
Southern Branch ..	2
South-Western Branch	11
	22

No returns were made by the North-Eastern and North-Western Branches.

There are 97 Training Colleges concerned and the results obtained are of no utility for the purposes of action or record. It is not too late for the other 75 Training Colleges to make their reports.

With regard to item 5, reports on meetings held have been received from the Eastern and Southern Branch Conveners. There are six Branches, hence the Conveners of the Eastern and Southern Branches must be congratulated on their initiative. *Re* Rule X, No. 4, Constitution, "It shall be the duty of the General Convener to keep a roll of membership of the Section," the only list to hand is from the North-Western Branch; other Branch Conveners to note, please.

The Section is not in good working order, but the coming year of experience should make for progress.

Geography.

The annual meeting of the Geography Section was held in January, 1923, after the annual meeting of the Association. Dr. Bradford, of Sheffield University, read a paper on the results of scientific testing of the knowledge of world geography possessed by 2,000 fourth year scholars in secondary schools. This paper is one of the first to examine statistically the fundamentals of geography teaching and has been printed in abstract.

The answers to a questionnaire circulated in July, 1922, were read and discussed. The result of an examination of the answers showed that a majority of the members agreed that the present syllabus was not entirely satisfactory, but members were unanimous that world geography could not be eliminated. Suggestions for alteration of the syllabus sent in by members were discussed, and it was decided to send them to the Branch Sections for report. Colleges were also asked to supply information as to geography theses which students write.

Information has been received about the work of Branch Sections. Two of these Branch Sections are reported to be in abeyance, and that of the Eastern Branch has had only an informal meeting. Only three Branches —the North-Western, the Midland, and the Southern—have held formal meetings. The North-Western Section decided to test students on the lines suggested in Dr. Bradford's paper and to circulate to members lists of books dealing with particular aspects of geography. The Midland Branch circulated a questionnaire on the part played by local geography in teaching schemes and discussed the results at a subsequent meeting. The Southern Section discussed among other things the suggested alterations in the syllabus.

It is to be noted that partly as a result of the non-existence of Sections and partly because the matter remitted has not been discussed the method which has been tried of remitting matters from the annual meeting of the Section for discussion at Branch Sections has definitely broken down. The proposals for modifying the syllabus were discussed by only two Branches and the matter has therefore not been carried further. This is a pity.

History.

Branch Sections have now been formed in all except the South-Western Branch. The total number of members is 67. The chief work of the Section last year was the arrangement of conferences with the Inspectors of the Board of Education, mainly for the purpose of discussing the proposed new schemes which were issued in the summer. At the meeting of the Section held on January 10th, at which sixteen members were present, it was decided that the subjects which could most profitably be discussed this year were: (1) world history and (2) history method demonstration, with a view to improving the practical work of the students in the schools. Miss Lane, of the Municipal Training College, Hull, was elected Convener.

Hygiene and Physical Training.

The most important event in connection with this Section was the Summer Course held at Oxford from 28th July to 11th August. It was arranged by Dr. Crowley and Dr. Spencer on behalf of the Board of Education; both were present during it, and all those who attended feel very grateful to them for planning the course and also for the trouble they took to make it the success it undoubtedly was.

The course included lectures and practical demonstration work in zoology and general lectures and discussions upon the relationship of the teaching of biology to education and hygiene. These lectures embraced such subjects as biology and its place on modern life, biology and psychology, biology and its place in education and in the curriculum of the Training Colleges, the teaching of hygiene and of sex hygiene in the Training College.

Courses of lectures were given and practical classes held by Mr. Julian Huxley, Miss Talbot, and Mr. de Beer, and single lectures by Dr. Crowley, Dr. Winifred Cullis, Sir Arthur Keith, Professor Tansley, and others, while Dr. Spencer gave constant help in practical work and in discussions.

Intervals between lectures were happily spent in exploring Oxford, on the river, or in social gatherings kindly arranged by Miss Talbot and by the Warden of the Hostel for Women Students of Ruskin College, where a large number of the party were in residence.

Art.

Until November last two of the Branches had no representatives for drawing, but now that they have found Conveners it is hoped that the united Section will become more active.

Reports from Branches show that members are realising the seriousness in Art not being recognised as an equivalent to other subjects.

Concern is felt as to the Board's still continuing to set an examination for students in the ordinary drawing deserving a mark of credit; since the deputation to the Board in May, 1922, it had been hoped that the same arrangements would have been made for ordinary drawing as for other inspected subjects.

Music.

Meetings have been held in London from time to time during the year, at each of which the main issue has been kept in view, viz., the educational value of music and the advisability of the inclusion of the subject in the Matriculation, or General Schools, Certificate. For it is clear that until such an educational value has been conceded officially to music, the subject cannot be given due attention in Secondary Schools, and therefore we shall have ill-prepared students entering the Training Colleges.

After talking over this matter quite recently with the Principal of one of the larger Training Colleges, we can accept it as an incontrovertible fact that, musically, the state of the students entering College still continues appalling. At the present time there is no improvement in technical knowledge of either notation—if anything the reverse—and we are still confronted by the problem of how to produce teachers of music from such material. This opinion seems general.

At the 1923 Annual Conference of the Training Colleges Association and the Head Mistresses' Association (held at Whitelands Training College), a paper was read on February 27th, entitled "Music in the Secondary Schools from the point of view of the Training Colleges." This was an excellent opportunity for dealing with the difficult subject of the musically ill-prepared student in Training Colleges. The opener of the subject found a very helpful attitude on the part of the headmistresses. There was some discussion, and most of the important points were dealt with as far as possible, *e.g.*, understaffing, crowded curricula, etc.; but the feeling of the meeting was distinctly sympathetic. It would appear that little, if any, opposition would be met with from the headmistresses at the inclusion of music as a subject in the General Schools Examination, and that due provision then could be made for the musical girl. The educational value of music, as pointed out in a recent speech by Sir Henry Hadow (quoted at this meeting) was generally recognised. All this is very encouraging.

At a Southern Section meeting, held at Whitelands Training College on October 22nd, 1923, at which were present most of the representatives of the London Colleges, many interesting points were discussed; among others this aforementioned one of music as a matriculation subject. The Convener was asked to discover how far this matter had progressed toward a final decision; and, after careful enquiry, it has been ascertained from one of the members that a committee is now sitting, under the chairmanship of Sir Henry Hadow, to decide this question, the results of which will soon be made known and will, we have reason to hope, be satisfactory.

In the meantime it is interesting to note that it is possible for music both to be well taught and to have its due share of the time-table. By the courtesy of Dr. Helen Brock, an enquiry has been made into the "Experimental

Course in Music," which is now in progress at the Mary Datchelor School, the report of which course is published by the Board of Education for all to study, and is to be recommended to those interested in the subject as enlightening and helpful to our point of view.

Communication with all the Sections has been held; but the Southern Section considers that further interchange of opinions with the other Branches would be very helpful, and appeals for more support in this matter.

Mathematics.

A general meeting of the Section was held in January at the time of the annual meeting. The General Convener reported that attempts had been made to form Branch Sections, and that one or two of them had found it possible to hold meetings. Various topics were suggested for discussion by the Sections. The most important was the question of possible agreement between the Colleges and Schools with reference to methods of teaching in arithmetic, and the causes and possible remedies for the pronounced weakness of entrants in mathematics. The reports received by the General Convener make it clear that most of the Sections have found it difficult to arrange meetings. Suggested sectional meetings have been crowded out by those of Sections with a larger membership: in the case of two Branches even the formation of a Section has been found impossible. The annual meeting of the Section tends to become virtually a meeting of the Southern Branch Section: it is hoped that this will not be so much the case in future. The North-Western Branch Section has held two valuable meetings, many of the points raised at which have been dealt with in the Arithmetic Report recently issued. This report forms the most tangible result of the work of the Section so far, the sub-committee having been appointed at its suggestion. It is hoped that the report will be of considerable value to those who are responsible for the arithmetic method work in the Colleges. It should be said, however, that members of the Section appear to desire to go considerably further than the report recommends in the direction of a compulsory pass standard in mathematics for all students, unless there is some guarantee that they will not be required to teach arithmetic to senior classes. The report may be regarded as going as far as practical politics will allow at present. The present academical year witnesses the introduction, for examination purposes, of the Board's new Syllabus in Mathematics, which differs widely from the old in some respects and introduces new elements which are at present the cause of some uncertainty to the mathematical teachers in the Colleges, *e.g.*, the new course proposed in the Calculus. Suggestions have already been received that some of these points should be discussed at the Easter Conference, and opportunity will probably be found for such discussion.

English.

During the year 1923 the English Section met in January and in February to discuss the new Board of Education syllabus in English, and to elect representatives to meet the Board's representatives and to lay before the Board the views of the English Section. In March the T.C.A. representatives, Canon Blofeld, Miss Edmonson, Miss Ivatt, Miss May, Miss Payne, Miss Terry, Mr. Wainwright and Mr. Wilkinson, met Mr. Ward, Mr. Dover Wilson, Mr. Hales, and Miss Monkhouse at the Board of Education.

At the meeting the Board's representatives promised to consider the suggestions that one of the advanced courses should be omitted each year and a new one inserted; that opportunities for comparative work should sometimes be given; and that the "Shakespeare" scheme, advanced course, should be amended and that it should become a course on the rise and development of the English drama up to and including Shakespeare. The Board's representatives stated that it was not the Board's intention to revive the formal test in reading and recitation. They said that a local accent was not necessarily to be regarded as bad speech, and that what should be stressed was ability to interpret the meaning of an author. If a candidate's speech were really bad, he should not be eligible for a mark of distinction in English, and if he had unusual powers of oral expression, a note to this effect might be sent to the Board, and, if he only just missed getting a Distinction in English on his written work, he might be allowed the mark.

The value of the examination essay was discussed, and the members of the Board said that it was regarded by them as being of great value as a test of the general quality of a student's mind, of his penetration, clearness, and taste.

Others matter discussed were the new English language paper and Scheme B. The Board's representatives explained that the language paper was intended to be a test of a student's ability to grasp the full meaning of what he read and to express it in words in a workmanlike way. The paper would not contain questions on literary criticism, but would test ability to paraphrase, to write a précis, and to follow a writer's argument.

The examination paper on Scheme B, it was explained, would consist of questions set so as to be adapted to the schemes sent in by the Colleges. Questions might be asked, for example, on forms of literature, the epic, lyric, etc., or on a period of literature, or on the treatment of a subject by different writers.

Mr. Ward concluded the Conference by suggesting that representatives of the English Section of the T.C.A. should meet the Board's representatives from time to time.

Handwork and Needlework.

The annual meeting of the Section was held at the London Day Training College on January 6th, 1923.

The meeting re-elected Miss Serjeant as Convener. Miss Lane, of Hull Training College, was elected Secretary.

A discussion took place concerning the "Credit Mark" awarded by the Board for handwork and needlework. It was decided not to do anything further in the matter for the present.

The proposed Conference to be held in 1924 was also considered.

Subjects discussed by the various Branches were:—

1. Board of Education pamphlet on Handwork.
2. Correlative and other Handwork.
3. The "Credit Mark" awarded by the Board for "Needlework and Handwork."

(The Midland Branch felt that when a student gained a "Credit Mark" in these subjects the word "Handwork" should be added to the Certificate given by the Board.)

4. Advisability of separating handwork and needlework as subjects in the Training College course.
5. Two Branches thought that it would be helpful to see the work of other Colleges and agreed to invite members, through the Branch Convener, to visit any exhibition held in their Colleges.

No report has been received as to whether such visits have taken place.

Branch Convener, North-Western Branch: Miss Serjeant, Warrington.

RESIGNATION OF MISS DENNING.

At the Council meeting on May 17th a letter was received from Miss Denning in which she finally resigned the Secretaryship of the Association. This intimation was received with great regret and the warmest thanks of the Council were given to Miss Denning for all her work in connection with the Association. Since the war this has been very considerable. It was unanimously agreed that she should be asked to become an honorary life member.

IN MEMORIAM.

REV. J. P. FAUNTHORPE.

Rev. J. P. Faunthorpe, sometime Principal of Whitelands College, Chelsea, passed away on May 14th at his home at Bromley Common, Kent, aged 85.

From a pupil teachership at Ramsgate, Mr. Faunthorpe entered S. John's College, Battersea, and on the completion of his training was appointed to a Lectureship at Chester Training College. After a year he returned to S. John's as Lecturer and later became Vice-Principal, leaving in 1874 on his appointment as Principal of Whitelands College. Mr. Faunthorpe retired in 1907, after thirty-three years at Whitelands.

MISS FLORENCE EXTON.

The news of the unexpected death of Miss Florence Exton, Principal of the Diocesan Training College, Lincoln, came as a great shock to the members of her College and to the many hundreds of old students with whom and for whom she had worked during her seventeen years of Training College life, with the untiring energy and the efficiency that were pre-eminently characteristic of her.

Florence Exton was the second daughter of the Rev. Francis Exton, Vicar of Alkborough, Lincs. She was born in 1877 and was educated at the Notting Hill High School; from there she went to Girton with a Mathematical Scholarship and took the Mathematical Tripos, being placed among the Senior Optimes.

Her first teaching post was at the Bath High School. She left there in 1898 to take the post of Mathematical Mistress at the Bradford Girls' Grammar School; in 1906 she was appointed Lecturer in Mathematics at Avery Hill College, Eltham, a new Training College opened by the London County Council in that year. Miss Exton became Warden of a Hostel and then Vice-Principal of the College; she left in January, 1920, to take up the position of Principal of the Lincoln Training College.

The loss to Avery Hill was great. As a teacher Miss Exton had unusual powers: her colleagues and students will always remember her demonstration lessons in mathematics, which were models of clearness and interest. She had the gift of bringing out the best in people and of helping them to develop new interests and latent capacities. Her unselfish sympathy and ready help were never asked in vain, her high ideal of efficiency was a constant stimulus.

When Miss Exton went to Lincoln she found that, owing to lack of repairs and renewals during the war, much needed to be done to the College building. During her four years' Principalship, the Practising School was enlarged, the Old Students' Association was revived and organised, and the playing grounds were improved.

Miss Exton served in various capacities on several Committees engaged in diocesan and educational work, holding among other offices those of President of the Lincoln Branch of the Geographical Association and President of the Lincoln Head Teachers' Association.

She died suddenly in the Lincoln Nursing Home, after an operation for appendicitis, on December 20th, 1923.

Quiet and reserved, Miss Exton was probably only known really well by her own family and her intimate friends.

Her work has been cut short, but her influence lives on and her personality will not soon be forgotten.

Z.M.

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The Training College Bulletin

Edited on behalf of the
TRAINING COLLEGE ASSOCIATION
by
Lt.-Col. W. J. DOUGLAS,
Saltley College, Birmingham.

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Printed in another column is a paper on the need for a complete reorganisation of the Professional Studies in Training Colleges and a plea for a biological basis for these studies. For some time there has been a widespread feeling that a right basis for professional work should be found. The biological basis was the idea put before those who attended the Oxford courses last year under Mr. Julian Huxley, courses which it is understood will be repeated this coming year. It is urged that biology should not only find a stronger place in the Science Courses of the colleges, but that it should also be merged into an Education Course as such. Quite possibly many will agree that biology should form the basis for prosecuting educational studies in general, but the difficulty arises when an attempt is made to find the exact syllabus for this end. The problem is very definitely attacked in the paper which was read at the Aberystwyth Conference to the General Teaching Section, and also at a recent meeting of the Midland Branch at Cheltenham.

The impression generally given was that a partial revolution in the Training College point of view would have to be brought about. Two serious difficulties at once present themselves, namely, in the finding of (1) a sufficient number of biological psychologists to carry on the work, and (2) enough time to cover the course. Criticism on the proposals put forward in the paper is invited with a view of further shaping and practicalising them. They have been put forward tentatively, and careful experiment may shape them into a really valuable course. Probably the psychology lecturers in colleges have long since adopted the biological standpoint for their work: the suggestions now put forth are by way of *material* aid to that which may have been treated in the past without expert specific knowledge.

EDITOR.

Vice-President for 1925.

Mr. Thos. P. Holgate, City Training College, Leeds, has been elected to be Vice-President of the Training College Association for 1925.

COUNCIL MEETING, OCTOBER 18th, 1924.

There was a meeting of the Council on Saturday, October 18th, at the London Day Training College.

Great regret was expressed at the necessary absence of the President, and it was agreed that Miss Lloyd Evans should take his place until his return.

Solicitor to the Association.

The Secretary reported that the services of Mr. R. W. B. Buckland had been secured as legal adviser to the Association. Mr. Buckland is solicitor to the Incorporated Association of Headmasters and to other educational bodies. He has very generously offered to act in an honorary capacity in so far as the interests of the Association as a whole are concerned. In individual cases the usual relationship as between solicitor and client would obtain.

South Wales Branch.

The Secretary reported that the South Wales Branch was now established. The Chairman is Dr. Ida Saxby, and the Secretary Mr. Evan J. Jones, of University College, Cardiff, both of whom are the Branch representatives on the Council.

Annual Meeting.

The date fixed for the Annual Meeting is Tuesday, January 6th, 1925. Dr. Ernest Barker, Principal of King's College, has consented to speak at the afternoon meeting. The Section meetings will be on Wednesday, January 7th, and the Council and Committee meetings on January 5th.

Religious Education Committee.

The Council appointed Miss Allan, Dr. Dix, and Miss Mercier to serve on the Religious Education Committee. This Committee will have its first meeting on November 22nd. The Branch representatives are Miss Jenkins (North Western), Miss Spalding (North Eastern), Canon Blofeld (Midland), Miss Waterhouse (Eastern), and Miss Richards (Southern). A representative from South Wales will also be appointed. Miss Allan was asked to act as convener for the first meeting, when a chairman will be appointed.

Conference with the N.U.T.

Arrangements were made for a conference with the N.U.T. on the subject of the staffs of Demonstration Schools. Mr. Braddock, Miss Catty, Miss Lloyd Evans, Miss Mercier, Miss Varley and Mr. Welpton were appointed to represent the T.C.A.

Report of the Education Committee.

The following resolutions had been discussed by the Education Committee :—

(*a*) From the Eastern Branch :

> " That if, as has been suggested, the Board abolish the system of credits, the lists of candidates successful in the examination as a whole be issued in two parts, first division and second division."

It was agreed that in view of the information received from the Board of Education that the question of the abolition of credits has not been definitely decided upon the discussion of this resolution should be postponed until further information had been received.

(*b*) From the Handwork Section :

> " That the credit mark in Handwork and Needlework should depend on technical skill and not on the practical teaching mark.

This resolution was supported by the Committee and it was left to the discretion of the Chairman to communicate with the Board at an appropriate time.

(*c*) From the Mathematics Section: "That the Board of Education be asked to allow students who are taking Advanced Mathematics as part of the Two Year Course to sit for the Board's Examination in the Ordinary Course at the end of their first year as a precautionary measure."

The Committee did not feel that at the present time they could form a general policy on this question but thought that it should rather be left to each individual College to make its own arrangements.

Report of the Conditions of Service Committee.

The Chairman of the Conditions of Service reported on the cases of difficulty which had arisen since the last Council meeting. (See report of the Conditions of Service Committee.)

Other Business.

Lincoln Training College. — The Council approved the transfer of Lincoln Training College from the North Eastern to the Midland Branch of the Association.

Joint Standing Consultative Committee.—The present Constitution of this Committee was discussed, and Mr. Welpton was asked to prepare a memorandum to present to the next meeting of the Council.

The next Council meeting will be on November 22nd.

NEWS FROM COLLEGES.

Manchester.

The Municipal Day Training College and the Mather Training College, Manchester, have recently been amalgamated and are now known as one College: The City of Manchester Training College.

Miss Grace Owen, B.Sc., M.Ed., formerly Principal of the Mather Training College, has been appointed Principal of the amalgamated College.

Mr. Alfred Cann, M.A., formerly Principal of the Municipal Day Training College, has been appointed Chief Inspector of Schools under the Local Education Authority.

The Manchester Education Committee has also opened Parr's Wood House, on its estate at East Didsbury, as a Hostel for thirty-two students. On the same estate the new Training College is to be built.

The College retains its two Demonstration Schools, Crimsworth and the Nursery School.

Crimsworth School—for children between three and twelve years of age—has recently been recognised by the Board of Education as part of the Training College.

London Day.

Dr. Cyril Burt has recently been appointed to the staff of the London Day Training College as Professor of Education with special reference to educational psychology and experimental pedagogy. He will continue to act as psychologist to the London County Council.

Saltley.

Mr. H. E. Bailey, M.A., Lecturer in History, has been appointed to the staff of the Royd Hall Secondary School, Huddersfield. His place has been filled by the appointment of Mr. A. H. Blake, B.A., of University College and London Day Training College, London.

WINTER SPORTS IN SWITZERLAND.

A party not too large in number is being arranged by Mr. Valentine Davis, Senior Lecturer, Cheshire County Training College, for winter sports in one of the sunniest Swiss centres, with seven hours daily sunshine in December.

Instruction in skating and skiing will be given, and there will be as much daily discussion as may be desired of professional problems over afternoon tea.

The party will leave London probably on December 27th. The cost of the tour will be less than that advertised by the ordinary agencies. For further particulars members should send a stamped addressed envelope to Mr. Davis at the Training College, Crewe.

THE NEED FOR A COMPLETE RE-ORGANIZATION OF THE PROFESSIONAL SUBJECTS AND THEIR RELATION TO EACH OTHER AND FOR A BIOLOGICAL BASIS FOR SUCH.

By MISS JANE REANEY, D.Sc.

The majority of educationists now look upon teaching as a skilled craft and realise that the teacher must be taught the elements of his profession before undertaking it.

We have already realised that the main function of the teacher is not to impart knowledge but to guide along right lines of development. The trend of progress which is tending to make the doctor one who aims at preventing disease rather than curing it is making the teacher one who prevents the warping and stultifying of the growing mind by careful guidance. For both these definite knowledge of the laws governing growth are needed, but it is a significant fact, however, that six or seven years' training is considered necessary before a doctor can practise his art, while four years is the maximum allowed the teaching profession, and in many cases this is reduced to two.

What are the things we can ask of the teacher as a result of his preparation of his work? Surely we should expect, as well as a broad and accurate knowledge of the subjects he wants to teach, some knowledge of the fundamental laws underlying human growth and behaviour. Probably all we can hope to give the young teacher, apart from his knowledge of his subject, is some knowledge of the fundamental general laws governing the reaction of the mind to its environment, leaving him to apply this as a background for understanding something of the endless variety of individuals he comes across.

The teaching profession still suffers from a disability which it shared with the medical profession until quite recently, in that the powers that be regard the word "psychology" as anathema. Already there are distinct signs that psychology will be a compulsory subject in the curriculum of the medical student. Why not in that of the teacher? Ten years ago there may have been reason for this prejudice, but psychology has made enormous strides in the last decade. It is now one of the biological sciences, and its methods have been standardised on scientific lines. There is, however, a difficulty connected with the subject of which educationists must beware, and that is that the majority of people who have reached years of discretion think they know by experience the main principles underlying this science. They certainly do to some extent, just as they know a good deal of history and geography, but they would hesitate to teach these without years of specialised study as a background. The nurse from one point of view knows as much about children's diseases as the doctor, but she lacks the background of the latter, so we do not ask her to teach the subject to medical students. If psychology is to have its right place in the training college it must be taught by an expert just as much as any other subject, and by one who has had considerable experience in practical teaching in various types of schools.

The investigation of instinct and intelligence which plays so large a part in our modern educational method can only be understood by a study of evolutionary biology. The instincts and the interests based on them, the development of different tendencies at different ages, is meaningless without this.

It therefore seems essential that some kind of course in evolutionary biology should form the basis of all our educational method.

I should suggest that the present courses in "Principles of Teaching" "Special Method," "Hygiene," etc., should be replaced by :—

1. Elementary biology, dealing chiefly with evolution, and including some human physiology as a preparation for psychology, physical training and hygiene.
2. Elementary pure psychology.
3. Applied psychology and educational practice and organization. This course should include all questions of school organization and management, and should cover much of the work now taken in principles of teaching and hygiene.

The question arises who should teach these various subjects? The present arbitrary division into subject and method lectures is a survival that will have to go. The terms "method lecturer" and "Master or Mistress of Method" are anachronisms inherited from prehistoric times, when the subject lecturer had academic qualifications but often no experience in teaching, and taught the subject, while the master or mistress of method had experience in teaching and often very little academic qualification, and taught how to teach everything! We may congratulate ourselves that this type of potted education has gone for ever. Every subject lecturer also lectures on the methods of teaching his own subject, and in the future, when the professional work is done after the academic, will be appointed primarily for this purpose, and will have more time to supervise the practical teaching work.

To get the unification of the whole curriculum the psychology and general biology must be taken by one lecturer if possible, who would need high academic qualifications in psychology from the biological side, and if possible in physiology, with wide and varied school experience.

It would seem obvious that it is not possible to teach an applied science until the main elementary principles of the pure science are first known, and that our attempt to do this in the training course for teachers is leading to much misunderstanding.

The Board's Syllabus of Principles of Teaching fails very much in this respect. Students are often asked vague questions in educational method, that is, in applied psychology, when they have insufficient knowledge of the psychological principles underlying the facts discussed. It is to be hoped that in the examinations of the future definite questions will be given on psychological principle illustrated by examples drawn not only from the class room but from everyday life. But to secure reform we must first ask for another, *e.g.*, that the Board should appoint a Biological Psychologist on the staff of examiners.

OUTLINE SCHEME SUGGESTED.

1. Biology. 1st Year.

A lecture course in general Evolutionary Biology with the aim to give students definite facts on which to base their study of educational methods.

The course to be illustrated practically wherever possible.

Outline Syllabus.—General ideas on the formation of the earth. Preparation of the earth for life. Appearance of life in the shallow seas.

Unicellular Organisms. — Plants—animals.

Colony Stage: Multicellular Plants—Animals.—Division of labour. Co-operation. Structure adapted to function. The sacrifice of some individual freedom for the good of the whole, specialisation. The evolution of sex in the unicellulars as a means of getting over adverse conditions.

Radial Animals.—Hydra—starfish, etc. The Portugese man of war.

Life in the Sea.—Evolution of digestive and breathing apparatus. Further advance protection by shells. Mussel.

The appearance of the Animal with a head.—Progress forward. The earthworm. Further protection—the eoskeleton—crab, shrimp. Insects.

The Rock Record showing the various geological periods and the points at which the types appeared. The appearance of the flowering plants and their relation to insects. A typical insect showing its adaptation to environment.

The first conquest of the air: Specialised Instincts.—The amphibeans. Life history of the frog. The giant reptiles. Tragedy of over specialisation.

Factors making for success.—Love of adventure. Power of adaptation. Geneological tree showing lines of evolution of the higher animals. Development of the egg—method of reproduction.

Appearance of the Vertebrates.—The conquest of the land. Breathing apparatus changed. Paired limbs. Sense of hearing and vision developed very much.

Birds.—Second conquest of air—a very specialised line. Relation to fossil reptiles. Mind evolving—care of the young. The vertebrate skeleton. Comparison of different types.

Mammals.—The duckbilled platybus showing the transition to a new method of reproduction. Parental care, maternal sacrifice. The physiology of reproduction. The evolution of the nervous system. Increase in choice of action and brain complexity. Comparison between brains of fish, frog, dog, monkey, man. The appearance of unspecialised instincts. General scheme of instincts common to man and the higher animals.

The Evolution of the Sense Organs.—Increased power due to frontal vision. The higher mammals. The evolution of certain specialised types—bird, horse, elephant.

The new type always arising from an unspecialised type.—Man's body very unspecialised, therefore able to be adapted to varied conditions.

The appearance of man on the earth.—History of various types. Homo Sapiens. Development of brain. Lengthening of period of youth. Parental sacrifice. Result of further brain growth. The doctrine of heredity. Short historical outline of theories. Early ideas :—

CONTINUED—BIOLOGY. PSYCHOLOGY.

1. Lamarck.
2. Darwin.
3. Weismann.
4. Von Baer.
5. Mendel.

Tendencies observed in history of life on earth as a whole: Spirit of adventure—conquest of new conditions. Adaptability. Structure altering to suit function. An ordered universe governed by mind.

PSYCHOLOGY. To begin 2nd Term of First Year.

Comparative Psychology.—Psychology the science of behaviour. Methods of study. Man at the head of the animal kingdom. His inheritance from earlier types. Evolution of mind through different stages, *i.e.*, to evolution of nervous system. The sensing motor arc. Reflex. Automatic. Volitional action. Sensory and motor areas of the brain. The association areas. Development of intelligence. Memory. Imagination. Different forms of attention. Interest. Instincts. Comparison between man and other animals. Stages at which they appear in the child. Social interest. Further development in man of imagining power of forming concepts—abstract ideas—reason. Evolution of logical thought—induction and deduction. Ideals. Social codes—Ethics.

First and Second Years.

Lectures in Methods of Teaching. Books, apparatus, etc., by Subject Lecturers.

Second Year.

The physical well-being of the Child.—Elementary genetics. The influence of heredity and environment on the inheritance of the child. Conditions of health in childhood. Conditions of healthy work in school. School buildings, playing fields. Equipment and apparatus. The health of the teacher in relation to her work. Common ailments of school children: their diagnosis and prevention. The school medical service. Medical inspection. Welfare of infants and young children. The evolution of a health conscience. Public hygiene.

6. GENERAL ORGANISATION OF THE SCHOOL LIFE OF THE CHILD.

(*a*) Types of schools.
(*b*) Departments—actual and ideal.
(*c*) Curricula.
(*d*) School government and discipline.
(*e*) Value and function of examinations, tests of intelligence, tests of attainments, etc.

SCHEME OF WORK.

	Terms. 1	2	3	4	5	6
Biology	×	×	×			
Psychology ..		×	×	×	×	×
Health				×		
and Organisation ..					×	×
Special Methods of individual subjects ..	×	×	×	×	×	×

THE CONDITIONS OF SERVICE COMMITTEE.

Since the last issue of the BULLETIN it has not been possible to make any further progress with respect to the general problem of the salaries of the staffs of Training Colleges. It was pointed out in this column of the last issue that the President of the Board of Education had refused to go into this general problem until such time as the existing Burnham Committees had arrived at an agreement *or* had failed to agree. The present position is that, so far as the Elementary School Teachers' Burnham Committee is concerned, negotiations are, for the time being, at an end, the teachers' panel having refused to agree to any further reductions beyond those already in force, *i.e.*, the five per cent. voluntary abatement and the five per cent. deduction towards the payment of the cost of superannuation. The position in regard to the Secondary and Technical Teachers' Burnham Committees is somewhat different. In these cases the teachers' panels have agreed to *explore* "the problem of determining definite proposals which would give a total ultimate reduction approximating to ten per cent." This does not mean a further ten per cent. additional to the reductions now in force, but a further five per cent. approximately; for the ten per cent. mentioned includes the five per cent. voluntary abatement now made. The Authorities appear to be suggesting a slightly less reduction than ten per cent. in the first year (*i.e.*, from April 1925) and the full ten per cent. afterwards. Again, it by no means follows that this would result in a ten per cent. reduction all round, for suggestions have been made by the Authorities which would hit the younger teachers more than the older ones. It must be borne in mind that the teachers' panels have only consented to *explore* the problem, and it is very likely that the result will be that they will fall into line with the Elementary Teachers' Panel and refuse all further reductions.

The position as it affects the staffs of Training Colleges is that we must wait and see. Whatever happens in the existing Burnham Committees is bound to affect us, but until their negotiations are brought to an end, successful or otherwise, our hands are tied. There is a general feeling amongst the leaders of the various bodies of teachers that negotiations will go on or at all events be resumed, for whatever be the result of the General Election, all political parties seem to be pledged up to the hilt to secure fair play for the teachers of the schools.

The Conditions of Service Committee have obtained permission from the Council to invite the Ling Association to co-operate with the T.C.A. in making representations to the Board of Education regarding the position of lecturers in physical training on Training College staffs. At a meeting of the Committee held on the 17th October several interesting cases were considered concerning members of the Association who had asked for advice or assistance. These included enquiries regarding income tax, forms of agreement, full time service, and salaries. A case of special interest was one in which a new form of agreement implied a change from a quarterly mode of payment to a four-monthly one. This involved in certain cases the loss of payment, for this year, of the August holiday month, this loss not being balanced by payment having been received for a holiday month of the year of first appointment. The position was serious, in that it not only involved loss of salary, but also because service for August of this year would be non-pensionable if no salary were received. It is now understood that the difficulty has been removed by the Board of Education finally agreeing to recognise for grant purposes, in this case, salary for the said month of August.

It is again requested that members submitting cases will give full detailed particulars.

Thos. P. Holgate, *Chairman.*

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